Vol. 1038 Number 1

OFFICIAL GAZETTE

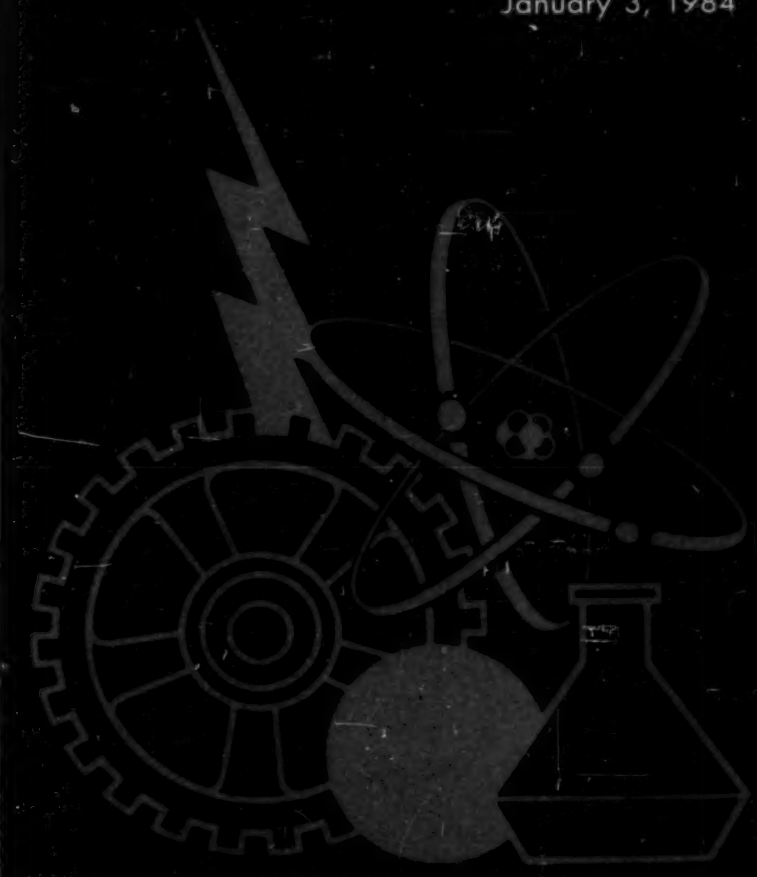
of the

UNITED STATES PATENT AND TRADEMARK OFFICE

Route to:

PATENTS

January 3, 1984



U.S. DEPARTMENT OF COMMERCE

Patent and Trademark Office

PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

OFFICIAL GAZETTE of the UNITED STATES PATENT AND TRADEMARK OFFICE

January 3, 1984 Volume 1038 Number 1

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The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed:

THE OFFICIAL GAZETTE (PATENT SECTION), issued weekly.

THE OFFICIAL GAZETTE (TRADEMARK SECTION), issued weekly.

GENERAL INFORMATION concerning PATENTS.

GENERAL INFORMATION concerning TRADEMARKS.

PRINTED COPIES OF PATENTS are furnished by the Patent and Trademark Office at $1.00 each; PLANT PATENTS in color, $8.00 each; copies of TRADEMARKS at $1.00 each. Address orders to the Commissioner of Patents and Trademarks, Washington, D.C., 20231.

Printing authorized by Section 11(a)3 of Title 35, U.S. Code P.T.O.

CONSOLIDATED LISTING OF OFFICIAL GAZETTE NOTICES RE PATENT AND TRADEMARK OFFICE PRACTICES AND PROCEDURES

PATENT NOTICES

The following is a compilation of the more important notices and rule changes which have been published in the Official Gazette from July 1, 1964, through December 31, 1983. These notices and rule changes are currently in effect unless otherwise noted.

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INFORMATION AND CORRESPONDENCE

(1) Official Patent Office Mailing Address Remains Washington, D.C.

The official mailing address for all communications sent to the Patent Office remains:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Any telegrams sent to the Patent Office must also bear the above identical address.

The physical location of the Patent Office is 2021 Jefferson Davis Highway, Arlington, Virginia. This address must not be used when addressing mail to the Patent Office.

No reference to Crystal Plaza, Virginia, should be made in the address of *any* communication intended for delivery to the Patent Office by the Post Office Department or Western Union.

Compliance with this instruction will help prevent any unnecessary delay in the delivery of mail, telegrams, etc.

C. A. KALK,
Feb. 20, 1969. *Director of Administration.*

(Office name change per Public Law 93-596, Jan. 2, 1975)

[860 O.G. 662]

(2) Group Number on all Communications Going to the Examining Groups

Applicants and their attorneys or agents are reminded that the Group number should be typed on amendments and other communications relating to matters handled in the examining groups in order to expedite the processing of mail. The number of the Group should be placed on right-hand side, opposite the serial number or name of the applicant.

This reminder does not apply to notices and reasons of appeal to the United States Court of Appeals for the Federal Circuit. These communications should be sent to the Solicitor at the address below:

Solicitor
Box 8
U.S. Patent and Trademark Office
Washington, D.C. 20231

Attention to these details will improve the efficiency and reduce the time necessary to process incoming mail.

THERESA A. BRELSFORD,
Nov. 23, 1983. *Assistant Commissioner for Administration.*

[1037 OG 25]

(2.1) Mailing of Papers to the PTO in Patent Interference Proceedings

Effective immediately, attorneys and agents are requested to address all papers mailed to the Patent and Trademark Office in connection with an interference proceeding, and any patent or application involved in an interference proceeding, as follows:

BOX INTERFERENCE
Commissioner of Patents and Trademarks
Washington, D.C. 20231

Use of this address will considerably assist the Board in its administration of patent interference proceedings.

DONALD J. QUIGG,
Nov. 28, 1983. *Deputy Commissioner of Patents and Trademarks.*

[1037 OG 25]

(3) Identification for Application Correspondence

The Office is continuing to experience difficulty in matching incoming papers with the corresponding application files. This applies especially to responses to Office Actions, powers of attorney, changes of address, status letters, requests for extensions of time, and petitions.

A very necessary part of a complete identification of a pending application is the three-digit Group or Art Unit number, e.g., 110 or 111. Frequently, the Group Art Unit number is entirely omitted, or there are errors in this number. In the latter situation the error often occurs as a result of the case having been reassigned within the Office, and the communication is directed to an Examining Group other than that indicated in the most recent Office Action.

Where the Group Art Unit number is entirely omitted, the routine operations of the Application Branch must be interrupted solely for the purpose of determining the location of the application so that the communication can be properly routed. Under these circumstances the efficiency of the Application Branch is impaired and the incoming paper is delayed in reaching its proper destination. Where such papers are not essential to compliance with a statutory period or time limit for response, they may be returned for completion to identify the location of the files.

To assist the Office in expediting its business, it is requested that ALL papers relating to a pending application include the following information:

1. Serial number (checked for accuracy),
2. Group Art Unit number (copied from filing receipt or most recent Office Action),
3. Filing date,
4. Name of the Examiner who prepared the most recent Office Action.
5. Title of the invention.

To further reduce the burden on Application Branch and the Examining Groups, it is also requested that the submission of additional or supplemental papers on a newly filed application be deferred until a filing receipt has been received. In the same vein, it would be appreciated if the filing of additional papers, relating to an allowed application were deferred until a notice of allowance (POL-85) was received.

If the above suggestions are adopted the processing of both new and allowed applications could proceed more efficiently and promptly through the Patent Office.

RICHARD A. WAHL,
Mar. 5, 1971. *Assistant Commissioner.*

[885 O.G. 2]

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(4) Identifying Application Correspondence With Issue Batch Number

Applicants or their attorney or agent can facilitate matching incoming papers with the corresponding application file by indicating the Issue Batch Number on all papers filed in the Office after receiving the Notice of Allowance and before the time the Issue Fee Receipt is received.

The Issue Batch Number is printed on the Notice of Allowance form in Box 4 in the lower left-hand corner below the address. The Issue Batch Number consists of a capital letter followed by two digits, for example; "A03," "D18," "F42," "J79." Any lower case letters before the Issue Batch Number should be ignored since they are the typist's initials. Use of the Issue Batch Numbers is important since the allowed applications are filed by these numbers.

Any paper filed after receiving the Issue Fee Receipt should include the indicated patent number rather than the Issue Batch Number. At this time in the processing, the Issue Batch Number is no longer useful since the application has been removed from the batch at the time the patent number was assigned.

RICHARD J. SHAKMAN,
Jan. 16, 1976. *Assistant Commissioner for Administration.*

[943 O.G. 519]

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(5) Hand Delivery of Papers

The notices of November 10, 1969 (869 O.G. 345) and September 8, 1970 (879 O.G. 667), regarding "Hand Delivery of Papers," are superseded and the practice indicated below is hereby made effective.

Any paper which relates to a pending application may be personally delivered to an Examining Group. However, the Examining Group will accept the paper only if: (1) the paper is accompanied by some form of receipt which can be handed back to the person delivering the paper; and (2) the Examining Group being asked to receive the paper is responsible for acting on the paper.

The receipt may take the form of a duplicate copy of such paper or a card identifying the paper. The identifying data on the card should be so complete as to leave no uncertainty as to the paper filed. For example, the card should contain the applicant's name(s), Serial No., filing date and a description of the paper being filed. If more than one paper is being filed for the same application, the card should contain a description of each paper or item.

Under this procedure, the paper and receipt will be date stamped with the Group date stamp. The receipt will be handed back to the person hand delivering the paper. The paper will be correlated with the application and made an official paper in the file, thereby avoiding the necessity of processing and forwarding the paper to the Examining Group via the Mail Room.

The Examining Group will accept and date stamp a paper even though the paper is accompanied by a check or the paper contains an authorization to charge a Deposit Account. However, in such an instance, the paper will be hand carried by Group personnel to the Office of Finance for processing and then made an official paper in the file.

WILLIAM FELDMAN,
Jan. 29, 1974. *Deputy Assistant Commissioner for Patents.*

[919 O.G. 1070]

(6) Post Card Receipt Reminder

Applicants and their attorneys or agents are reminded of the provision in Section 717.01(a) (now Section 503) of the Manual of Patent Examining Procedure relating to the use of post cards as "receipts" of papers filed in the Patent Office.

If a receipt for any paper filed in the Patent Office is desired, it may be had by enclosing with the paper a self-addressed post card identifying the paper. The Patent Office will stamp the receipt date on the card and place it in the outgoing mail.

The identifying data on the card should be so complete as to match the paper with the application or other document to which it is to be associated. For example, the document should be identified by the applicant's name(s), Serial No., filing date, appeal number, interference number, etc., and the paper should be identified by specifying the type thereof, viz, affidavit, amendment, appeal, application papers, brief, drawings, fees, motions, supplemental oath or declaration, petition, etc.

When papers for more than one document are filed under a single cover a return post card should be attached to the paper for *each* document for which a receipt is desired.

RICHARD A. WAHL,
Nov. 21, 1968. *Assistant Commissioner.*

[857 O.G. 667]

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(7) Acknowledgement of Receipt of a Patent or Trademark Application

When early notification of the serial number of newly filed application papers is desired, a *stamped, self-adressed post card* should be submitted with each application. Immediately after the mail has been opened in the Patent and Trademark Office, the post card will be stamped with both the receipt date and the serial number, and then returned to the addressee.

Within recent months, hundreds of cards could not be successfully returned because of insufficient postage or incomplete or nonexistent forwarding addresses. Accurate and complete addresses, including ZIP codes, are necessary to ensure prompt acknowledgement of the receipt of patent and trademark applications.

To assist in easy identification once the post card has been returned, it is suggested that the post card include applicant's names and title of invention.

When more than one set of application papers is filed under one cover, a return post card should be attached to each set of papers for which a receipt is desired.

THERESA A. BRELSFORD,
July 19, 1982. *Acting Assistat Commissioner for Administration.*

[1021 O.G. 96]

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(8) Status Inquiries

In an effort to sharply reduce the volume and need for status inquiries, the past policy that diligence must be established by making timely status requests in connection with petitions to revive is hereby discontinued.

When an application has been abandoned for an excessive period before the filing of a petition to revive, an appropriate terminal disclaimer may be required. It should also be recognized that a petition to revive must be accompanied by the proposed response unless it has been previously filed (Rule 137). Also, under Rule 113, "Response to a final rejection or action must include cancellation of, or appeal from the rejection of, each claim so rejected and, if any claim stands allowed, compliance with any requirement or objection as to form."

New Applications

Current examining procedures now provide for the routine mailing from the Examining Groups of Form POL-327 in *every* case of allowance of an application ex-

cept where an Examiner's Amendment is promptly mailed. Thus, the separate mailing of a Form POL-327 or an Examiner's Amendment in addition to a formal Notice of Allowance (POL-85) in all allowed cases would seem to obviate the need for status inquiries even as a precautionary measure where the applicant may believe his new application may have been passed to issue on the first examination. However, as an exception, a status inquiry would be appropriate where a Notice of Allowance is not received within three months from receipt of either a Form POL-327 or an Examiner's Amendment.

Current examining procedures also aim to minimize the spread in dates among the various examiner dockets of each Art Unit and Group with respect to actions on new applications. Accordingly, the dates of the "oldest new applications" appearing in the *Official Gazette* are fairly reliable guides as to the expected time frames of when the Examiners reach the cases for action.

Therefore, it should be rarely necessary to query the status of a new application.

Amended Applications

Amended cases are expected to be taken up by the examiner and an action completed within two months of the amendment date. Accordingly, a status inquiry is not in order after response by the attorney until five or six months have elapsed with no response from the Patent Office. A post card receipt for responses to Office actions, adequately and specifically identifying the papers filed, will be considered *prima facie* proof of receipt of such papers. Where such proof indicates the timely filing of a response, the submission of a copy of the post card with a copy of the response will ordinarily obviate the need for a petition to revive. Proof of receipt of a timely response to a final action will obviate the need for a petition to revive only if the response was in compliance with Rule 113.

In General

It is expected that this new policy will result in sharply reducing the number of status inquiries and permit the time now spent on them to be used in increasing Patent Office efficiency in other more essential areas.

Such status inquiries as may be still necessary may be more expeditiously processed by the Patent Office if each inquiry includes the application Serial Number, filing date, name of the applicant, name of the Examiner who prepared the most recent Office action, and Group Art Unit (taken from the most recent Office communication) in addition to the last known status of the application, and is accompanied by a stamped return-addressed envelope. Telephone inquiries regarding the status of applications should be directed to the group clerical personnel and not to the examiners. Inasmuch as the official records and applications are located in the clerical section of the Examining Groups, the clerical personnel can readily provide status information without consulting the examiners.

Status replies will be made by the Patent Office clerical support force and will only indicate whether the application is awaiting action by the Examiner or the applicant's response to an Office action. In the latter instance the mailing date of the Office action will also be given.

The Notices of Dec. 5, 1969 (869 O.G. 1031) and Sept. 22, 1965 (819 O.G. 444) are hereby superseded.

RICHARD A. WAHL,
Nov. 24, 1971. *Assistant Commissioner of Patents.*

[893 O.G. 810]

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(9) **Change of Address**

There recently has been an increased incidence in the number of applications suffering from disruptions in communications stemming from failure to notify the Patent and Trademark Office of a change of address on the part of applicant's representative (attorney or agent of record) in each application wherein he holds an active power of attorney. Applications have become abandoned as a result of an Office action being mailed to the old, uncorrected address and thereby failing to reach the representative at his new address sufficiently early to permit him to file a timely response. Accordingly, the requirement set out below is published as a reminder and is designed to ameliorate this problem.

Where an attorney or agent of record (or applicant, if he is prosecuting his application pro se) changes his correspondence address, he is responsible for promptly notifying the Patent and Trademark Office of his new correspondence address (including ZIP code number). A separate notification must be filed in *each application* for which he is intended to receive communications from the Office. The notification should also include his telephone number.

While the notification need take no particular form, it should be provided in a manner calling attention to the fact that a change of address is being made. Thus, the mere inclusion, in a paper being filed for another purpose, of an address different from the previously provided correspondence address, without mention of the fact that an address change is being made, would not ordinarily be recognized or deemed as instructions to change the address on the file record.

It is emphasized that the above-delineated responsibility is *additional* to the separate obligation (see 37 CFR 1.347) of a registered attorney or agent to notify the Attorney's Roster of any change of his address for entry on the register, which must be done in a letter separate from any notice or change of address filed in individual applications. That obligation continues without change.

The degree of care exercised in adhering to the foregoing requirement for notification of change of address in each concerned application will be a factor for consideration in deciding petitions filed under 37 CFR 1.137 to revive applications which have become abandoned because of a failure to timely receive an Office action addressed to the old address. In such instances, the showing of the cause of unavoidable delay must include an adequate showing that a timely notification of the change of address was filed in the concerned application, in a manner reasonably calculated to call attention to the fact that it was a change of address. If no such notification was made, or was made belatedly, the showing must include an adequate explanation of that failure or delay. A showing that notification was made on a paper filed in the Patent and Trademark Office listing *plural* applications as being affected will not be considered a proper notification.

WILLIAM FELDMAN,
May 28, 1975. *Deputy Assistant Commissioner for Patents.*

[935 O.G. 1352]

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(10) **Change of Address or Practitioner in a Plurality of Patent Applications**

Change of Address

This notice is supplemental to the Notice of May 28, 1975, 935 O.G. 1352.

In those instances where a change in the correspondence address of a registered attorney or agent is necessary in a plurality of applications, and the number of applications is such as to cause undue hardship, the notification filed in each application may be a reproduction of a properly executed, original notification. The original notice may be sent to the Office of the Solicitor as notification to the Attorney's Roster of the change of address, or may be filed in one of the applications affected, provided that the notice includes an authorization for the public to inspect and copy the original notice in the event one of the applications containing a copy matures into a patent and the application containing the

original paper is either pending or has become abandoned. The copies submitted in each affected application must identify where the original paper is located. Otherwise, the practice governing the filing of notifications of change of address remains the same.

Powers of Attorney

In the event of a need to file a change in the power of attorney in a plurality of applications of a common assignee or inventive entity, and the number of applications is such as to cause undue hardship, a single, original paper may be used provided that a reproduction of this original paper is supplied in each of the affected applications. The copy of the original paper must identify in which application the original paper is located and authorize the public to inspect and copy the original paper in the event one of the applications containing a copy matures into a patent and the application containing the original paper is pending or has become abandoned. The procedures and usual prerequisites for the filing of grants and/or revocations or power of attorney otherwise remain the same.

WILLIAM FELDMAN,
Sept. 9, 1976. *Deputy Assistant Commissioner for Patents.*

[951 O.G. 454]

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(11) **Express Mail**

This notice is in response to a number of inquiries received in the Patent and Trademark Office regarding the notice on Express Mail of February 11, 1975, published in the *Official Gazette* of March 11, 1975 (932 O.G. 340).

There are two types of Express Mail delivery offered by the U.S. Postal Service—"Post Office to Addressee" and "Post Office to Post Office." The only type of service which can be used for Express Mail directed to the Patent and Trademark Office is "Post Office to Addressee." This service provides for delivery to one of our employees in Room 1627, Department of Commerce Building, Washington, D.C., no later than 3:00 p.m. of the next workday following its deposit before 5:00 p.m. at any postal facility with an Express Mail window.

The only address that should be used for Express Mail sent to the Patent and Trademark Office is:

"Commissioner of Patents and Trademarks
Washington, D.C. 20231."

"Post Office to Post Office" Express Mail *does not* provide for delivery but instead is retained at the postal facility of the addressee for pickup. The Postal Service *does not* notify the addressee that this type of Express Mail has been received and is awaiting pickup. If not picked up, this mail is held for 15 days and then returned to the sender.

Therefore, since the Patent and Trademark Office does not have resources for picking up any mail, including Express Mail, the "Post Office to Post Office" Express Mail will not reach the Patent and Trademark Office.

WILLIAM I. MERKIN,
May 15, 1975. *Acting Assistant Commissioner for Administration.*

[936 O.G. 1554]

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(12) **Certificate of Mailing Procedures**

On November 1, 1976, the Patent and Trademark Office instituted the Certificate of Mailing Procedure by promulgating 37 CFR 1.8 in an attempt to reduce the number of problems resulting from late receipt of responses due to mail delays. This notice was published in the *Official Gazette* on October 26, 1976 (951 O.G. 1342 and TM 210). Guidelines relative to this procedure were published in the *Official Gazette* on November 16, 1976 (952 O.G. 918 and TM 174).

Although the new procedure has gained wide acceptance, it has not been entirely without problems. One major problem involves the correlation of the certification with the appropriate papers when presented on a separate sheet. In order to curtail this problem and other minor ones, the guidelines published on November 16, 1976, are superseded by the following guidelines. They are applicable to responses in both patent and trademark matters, as permitted by 37 CFR 1.8.

Guidelines

A) The certification requires a signature. Specifically, if the certification appears on a paper that requires a signature, two signatures are required, one for the paper and one for the certification. Although not specifically required by 37 CFR 1.8, it is preferred that the certificate be signed by the applicant, assignee, or registered practitioner.

B) When possible, the certification should appear on a portion of the paper being submitted. However, if there is insufficient space to make the certification on the same paper, such as in the case of the patent issue fee transmittal form PTO-85, the certification should be on a separate sheet securely attached to the paper.

C) When the certification is presented on a separate sheet, the sheet must (1) be signed and (2) fully identify and be securely attached to the paper it accompanies. The required identification should include the serial number and filing date of the application as well as the type of paper being filed, e.g., responses to rejection or refusal, Notice of Appeal, etc. An unsigned certification will not be considered acceptable.

Moreover, without the proper identifying data, a certification presented on a separate sheet will not be considered acceptable if there is any question or doubt concerning the connection between the sheet and the paper filed.

If the sheet should become detached from the paper and thereafter not associated with the appropriate file, evidence that this sheet was received in the Office can be supported by submitting a copy of a post card receipt specifically identifying this sheet and the paper and by submitting a copy of the sheet as originally mailed. Attention is directed to the notice of November 21, 1968 published in the *Official Gazette* (857 O.G. 667) relative to the use of post cards as receipts.

D) In situations wherein the correspondence includes papers for more than one application (e.g., a single envelope containing separate papers responding to Office actions in different applications) or papers for various parts of the Office (e.g., a patent issue fee transmittal form PTO-85 and an assignment), each paper must have its own certification as a part thereof or attached thereto.

E) In situations wherein the correspondence includes several papers directed to the same application (e.g., a proposed response under 37 CFR 1.116 and a Notice of Appeal), each paper should have its own certification as a part thereof or attached thereto.

Use of Stamped Certification

Some practitioners are placing the certification language on the first page of a paper with an inked stamp. Such a practice is encouraged because the certification is not only readily visible but also forms an integral part of the paper. An example of a preferred stamp is:

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on _____
(Date of Deposit)

_____
Name of applicant, assignee, or
Registered Representative

_____
Signature

_____
Date of Signature

Interpretations

The phrase "prior to expiration of the set period" in 37 CFR 1.8(a) includes the last day of the set period, which last day may be the "next succeeding secular or business day" as set out in 35 U.S.C. 21. Also, the filing of a 37 CFR 3.54 form to effect a filing under 37 CFR 1.60 is considered the filing of an application and is, therefore, excluded from the Certificate of Mailing Procedure.

C. MARSHALL DANN,
Aug. 30, 1977. *Commissioner of Patents and Trademarks.*

[962 O.G. 20]

(13) **Change in Legal Holidays**

The Commissioner's Notice of December 2, 1970, "Change in Legal Holidays" is hereby rescinded, in view of Public Law 94-97, September 18, 1975, 89 Stat. 479, which amended the listing of legal public holidays in 5 USC §6103 by changing the Veterans Day holiday from the fourth Monday in October to November 11 of each year. Section 6103, as amended, reads as follows:

(a) The following are legal public holidays:
New Years Day, January 1.
Washington's Birthday, the third Monday in February.
Memorial Day, the last Monday in May.
Independence Day, July 4.
Labor Day, the first Monday in September.
Columbus Day, the second Monday in October.
Veterans Day, November 11.
Thanksgiving Day, the fourth Thursday in November.
Christmas Day, December 25.

Each of the holidays enumerated will constitute "a holiday within the District of Columbia," as referred to in Section 21, Title 35, United States Code.

Attention is called to the fact that the above listing of holidays in 5 USC §6103, as amended, should be followed, rather than the listing appearing on page 69 of the June 1979 Patent Laws pamphlet which does not reflect the noted amendment.

LUTRELLE F. PARKER,
Sept. 25, 1979. *Acting Commissioner, U.S. Patent and Trademark Office.*

Editorial Note: Sec. 6103(c) states that January 20 of each fourth year after 1965, Inauguration Day, is also a legal public holiday.

[987 O.G. 30]

(14) **Change in Drafting Practice**

Effective Apr. 12, 1982, the Patent and Trademark Office is terminating its drawing correction service.

In order to effect any changes in the drawings, applicants will be responsible for submitting either new drawings or having the drawings corrected by a bonded commercial draftsman, at applicant's expense, in the manner specified below. The new practice will permit applicants to delay correction of drawings in almost all cases until after the Notice of Allowance is mailed.

The initial list of bonded commercial draftsmen appears below. This list will be expanded as more commercial draftsmen are bonded. Applicants will, at least initially, be supplied with a current list of the bonded draftsmen with all Office actions requiring a drawing change.

The following is a letter which will be supplied, at least initially, to applicants in all Office actions requiring a drawing change. This letter explains the procedures for accomplishing the above, sets forth the time period within which the drawings must be corrected, and lists all of the currently bonded commercial draftsmen.

U.S.Department of Commerce, Patent and Trademark Office

Attachment to Paper Number
Serial No.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities (Draftsman's objections on PTO–948)

In order to correct any informalities in the drawings, applicants *MUST* comply with options (a) or (b) below. Failure to do so will result in *ABANDONMENT* of the application.

a) File new drawings with the changes incorporated therein. Applicant may delay filing the new drawings until the application is allowed by the examiner. If delayed, the new drawings *MUST* be filed within the *THREE MONTH* statutory period set for payment of the base issue fee in the **"NOTICE OF ALLOWANCE AND BASE ISSUE FEE DUE"** (PTOL–85). Also, if delayed, the drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsman and which indicates the following in the upper right hand corner:

Date of the Notice of Allowance
Issue Batch Number
Serial Number

b) Request a commercial bonded drafting firm (see list below) to make the necessary corrections.

A BONDED DRAFTSMAN MUST BE *AUTHORIZED. THE CORRECTIONS EXECUTED AND THE CORRECTED DRAWINGS RETURNED TO THE OFFICE* DURING THE THREE MONTH STATUTORY PERIOD SET FOR PAYMENT OF THE BASE ISSUE FEE IN THE "NOTICE OF ALLOWANCE AND BASE ISSUE FEE DUE" (PTOL–85). NOTE THAT THE STATUTE DOES NOT PERMIT EXTENSION OF THE THREE MONTH PERIOD SET TO PAY THE BASE ISSUE FEE.

2. Corrections other than Informalities Noted by the Draftsman on the PTO–948

All changes to the drawings, other than informalities noted by the Draftsman, *MUST* be made in the same manner as above except that, if delayed option (a) is selected, normally, a sketch of the changes to be incorporated into the new drawings *MUST* be approved by the examiner before the application will be allowed. If option (b) is selected, normally, applicants must submit, in duplicate, a separate paper containing a sketch of the proposed changes before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

3. Listing of Bonded Draftsmen

Graphe-Tech
11301 Rockville Pike
Kensington, Md. 20895
(301) 881-9400

Ultra Graphics, Inc.
Suite 300
3720 Farragut Ave.
Kensington, Md. 20795
(301) 946-1343

Mantech International Corp.
2121 Eisenhower Ave.
4th Fl.
Alexandria, Va. 22301
(703) 548-3879

Ord-Marine Engineering
10315 Kensington Pky.
Kensington, Md. 20895
(301) 949-3282

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Alexandria, Va. 22314
(703) 838-5793

National Graphic Center
205 W. Jefferson St.
Falls Church, Va. 22046
(703) 533-8700

Kirby Lithograhic Co.
2900 South Eads St.
Arlington, Va. 22202
(703) 684-7600

Mil-R Productions
2107 Mt. Vernon Ave.
Quinn Pat. Drwg. Service Co.
2021 Crystal Plaza Dr.
Arlington, Va. 22202
(703) 521-1650

Technical Illustrator
1911 Jeff. Davis Hwy.
Suite 600-CM1
P.O. Box 2627
Arlington, Va. 22202
(703) 920-8900

IT IS SUGGESTED THAT APPLICANTS DETACH THIS LETTER FROM THE OFFICE ACTION AND ATTACH IT TO THE FRONT OF APPLICANT'S FILE AS A REMINDER THAT, IN ORDER TO AVOID ABANDONMENT, A BONDED DRAFTSMAN MUST BE *AUTHORIZED, THE CORRECTIONS EXECUTED AND THE CORRECTED DRAWINGS RETURNED TO THE OFFICE*, OR NEW DRAWINGS SUBMITTED, DURING THE THREE MONTH STATUTORY PERIOD SET FOR PAYMENT OF THE BASE ISSUE FEE. NOTE THAT THE STATUTE DOES NOT PERMIT EXTENSION OF THE THREE MONTH PERIOD SET TO PAY THE BASE ISSUE FEE.

Currently there is a large backlog of applications pending before the Office draftsmen. Applicants whose applications are part of this backlog are strongly encouraged to have the necessary drawing corrections made by one of the bonded commercial draftsmen to expedite the issuance of their applications. If there has been authorization to charge a deposit account for these corrections, the authorization will not be processed. If a fee has been paid with cash, a refund will be processed.

The requirement of 37 CFR §§1.85, 1.86(b) and 1.123(a), specifying that drawings, or corrections to the drawings, may or must be made by the Office, is hereby waived.

GERALD J. MOSSINGHOFF,
Mar. 16, 1982. *Commissioner of Patents and Trademarks.*

[1017 O.G. 4]

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(15) Discontinuation of Drawing Comparison Fee

The Patent and Trademark Office no longer requires a $10 (ten dollar) comparison fee payment with the submission of formal sheets of drawings to replace originally filed informal drawings. Accordingly, no fee should be submitted, and all existing requirements for a drawing comparison fee are hereby rescinded.

THERESA A. BRELSFORD,
June 9, 1982. *Acting Assistant Commissioner for Administration.*

[1020 O.G. 10]

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(16) New Patent Drawing Correction Procedures

Drawings charged out from the Patent and Trademark Office, for the purpose of making changes or corrections, will be released from the Drafting Branch after the mailing of the Notice of Allowance. Most drawings should be available for charge out one week to ten days after the Notice of Allowance mail date. The major exception to this procedure will be when the examiner requires that drafting corrections be made prior to the Notice of Allowance issuance. We anticipate that this exception requirement will occur only for Design applications being appealed.

Unless a duplicate copy of the Drafting Letter has been filed by the attorney/applicant, the Office will not normally provide the commercial bonded draftsman with copies of either examiner approved drawing correction letters or a copy of the Patent and Trademark Office draftsman's noted informalities. It is the applicant's responsibility to provide copies of the necessary drawing corrections and the noted informalities. When drawings are borrowed from the Office draftsman, the serial number, batch number, and Notice of Allowance mailing date should be identified.

If for any reason a corrected and/or substitute drawing is not acceptable, a letter will be sent to the attorney/applicant. A bonded commercial draftsman must present a copy of this letter in order to borrow the unacceptable drawings.

THERESA A. BRELSFORD,
June 28, 1982. *Acting Assistant Commissioner for Administration.*

[1020 O.G. 18]

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(17) Regulations for the Use of the Facilities of the Patent and Trademark Office

Revision of Regulations

Agency: Patent and Trademark Office, Commerce.
Action: Notice.
Summary: The Patent and Trademark Office gives notice of a revision of its "Regulations for the Public Use of Records in the Public Search Room for Patents of the Patent and Trademark Office," published in the Federal Register of July 14, 1976, 41 FR 29009. The regulations published in the Federal Register of July 14, 1976, are limited to the use of the Public Search Room for Patents. The revision is intended to allow public use of other Patent and Trademark Office record facilities with minimum risk to the security of Patent and Trademark Office personnel and government property.
Effective Date: June 26, 1979.
For Further Information Contact: Bradford R. Huther, Deputy Assistant Commissioner for Administration, Patent and Trademark Office, Washington, D.C. 20231, 703-557-2290.
Supplementary Information: This revision is an extension of the present regulations, published in the Federal Register of July 14, 1976, 41 FR 29009, to allow public use of Patent Examining Group Facilities and the Scientific Library under conditions which are as nearly as possible the same as those which apply to the Public Search Room for Patents.

All persons seeking use of the Public Search Room for Patents and/or the Patent Examining Group Facilities must obtain a User Pass. The guards at the entrances to the Public Search Room for Patents can direct prospective users to the pass issuance desk. User Passes will be issued to persons not under prohibition from using the facilities who agree to abide by the regulations of the Public Search Room for Patents and the Patent Examining Group Facilities.

The use of the Group facilities for search purposes by members of the public is strictly limited to the search of materials not available in the Public Search Room for Patents or the Scientific Library and when it does not conflict with the regular business of Patent and Trademark personnel and only between the hours of 8:45 a.m. and 4:45 p.m. on regular business days.

The Public Search Room for Patents is open 8:00 a.m.–8:00 p.m., Monday through Friday except on legal holidays. The hours of the Record Room are 8:00 a.m.–5:00 p.m. on the days the Public Search Room for Patents is open.

The revised regulations appear below:

Regulations

Regulations for members of the public using the facilities of the U.S. Patent and Trademark Office, including but not limited to the Public Search Room for Patents.

The Public Search Room for Patents is defined as that area comprising the foyers of the lobbies of Buildings 3 and 4 of Crystal Plaza; the offices; Microfilm Center; restrooms and telephone areas off these foyers; the stacks; Record Room public reception area; study and copier areas between the foyers; and the Mezzanine.

The facilities of the Patent Examining Groups are defined as those areas in Buildings 3, 34 and 4 of Crystal Plaza designating Examining Groups.

With the respect to the Group Facilities, authorized personnel under these Regulations, include Supervisory Patent Examiners and Examining Group Directors.

The Scientific Library is located on the second floor of Building 34 of Crystal Plaza.

To maintain and protect the patents and related records located in the Public Search Room for Patents and the Patent Examining Group Facilities, it is necessary to establish and to enforce certain rules and regulations pertaining to the use thereof. Under applicable statutes and regulations, including 40 U.S.C. 486(c); 41 CFR Subpart 101-20.3; and appropriate Sections of Department Organization Orders 30-3A and 30-3B of the Department of Commerce, the regulations appearing below are established for those using the facilities of the Patent and Trademark Office.

These regulations supersede all previous regulations on the subject.

1. All persons using the facilities of the Patent and Trademark Office are subject to the regulations governing conduct on property under the charge and control of the General Services Administration which appear in 41 CFR Subpart 101-20.3 [41 CFR §§101-20.300 through 101-20.314].
2. All posted Official Notices are to be complied with.
3. Smoking is not permitted except in designated areas.
4. No food or beverages in any form are to be consumed except in designated areas.
5. Loud talking, use of radios, and any other forms of activity which may disturb other members of the public and/or Patent and Trademark Office personnel are forbidden.
6. Children brought into the Patent and Trademark Office must not be allowed to disturb others.
7. Users of the facilities may not give the Patent and Trademark Office as a mailing address or otherwise suggest that mail may be received at the Patent and Trademark Office; nor may correspondence be conducted on official Patent and Trademark Office stationery.
8. Messages shall not be affixed to walls, desks, phone booths, or other public property, except designated message boards.
9. Patent records and any other property of the Patent and Trademark Office shall not be removed from their normal location without permission from an authorized official; nor shall such records or property be mutilated. Authorization will not be given to remove from any Group Facility, U.S. patents or any other material readily available through the Scientific Library.
10. The use of equipment such as reproducing machines, typewriters and photographic equipment is prohibited without prior permission from an authorized official. Relative to the Public Search Room, the use of dictation equipment is prohibited except in designated areas. Whenever permission is obtained, the use of such equipment must not conflict with Regulation 5.
11. In the Public Search Room for Patents, library trucks or carts are to be used for transporting bundles only. The trucks or carts are not to be used for storage while making searches.
12. In the Public Search Room for Patents, patents temporarily removed from bundles for any purpose must be returned to the proper place in the appropriate bundle.
13. In the Public Search Room for Patents, all bundles of patents must be promptly and properly replaced in the stacks by the user.
14. The reserving of seats and/or working areas is prohibited.
15. Users of the Public Search Room for Patents are not permitted to use Patent and Trademark Office facilities beyond the Public Search Room for Patents after 5:00 p.m.
16. The front portion of the Public Search Room for patents, i.e., that portion facing Crystal Plaza Drive and having a high ceiling shall not be occupied by users after 6:00 p.m.
17. A valid User Pass must be worn and visible at all times when Patent and Trademark Office facilities are being used. In addition, all persons holding User Passes must register with the designated representative in each Examining Group where they search and must sign a log (sign-in, sign-out sheet) indicating time-in, time-out, name, User Pass number, class(es) and subclass(es) users after 6:00 p.m.
18. User Passes are nontransferable and must be surrendered to authorized Patent and Trademark personnel upon request for cause.
19. Packages, briefcases or other personal effects brought into the Public Search Room for Patents or the Group Facilities are subject to search by authorized Patent and Trademark Office personnel upon request.
20. All packages, briefcases or other personal effects brought into the Group Search Rooms must be removed when leaving the Group Search Room areas.
21. Patents and other documents must not be removed from the Group patent shoes for any reason other than for cursory study thereof while kept in close proximity with the shoe and must not be moved out of their normal sequence.
22. All patent shoes must be promptly replaced in their proper location in the shoe cases.
23. All textbooks, journals and the like must be returned to their proper location.
24. All persons using the facilities of the Patent and Trademark Office are to refrain from engaging in any conduct which (1) is criminal in nature or (2) which causes or appears to cause an employee of the Patent and Trademark Office to violate the conflicts of interest regulations of the Department of Commerce [15 CFR §§0.735-1 through 0.735-41].
25. All verbal requests for compliance with these regulations or other posted Patent and Trademark Office Notices pertaining to activity in the Public Search Room for Patents and the Group Facilities, when made by authorized Patent and Trademark Office personnel, must be promptly complied with.

These regulations will be enforced in accordance with the Procedures for Enforcement published in the Federal Register of May 17, 1978, 43 FR 21345 (970 O.G. 114, published May 30, 1978).

Persons violating these regulations may be denied the use of the facilities in the Public Search Room for Patents and the Patent Examining Group Facilities and may further be subjected to prosecution under the Criminal Code. Additionally, the name of any person violating these regulations who is registered to practice before the Patent and Trademark Office may be forwarded to the Solicitor for appropriate action under 37 CFR 1.348.

These Regulations have been instituted in order to maintain high quality and completeness of patent files and to provide, an orderly environment for exploring, or studying in depth, the wealth of scientific and technological information contained in United States Patents. Although the Regulations may cause some inconvenience, the understanding and cooperation of users will insure that, for future users, the knowledge contained in United States Patents will be available in an environment conducive to study in the Public Search Room for Patents and the Patent Examining Group Facilities.

DONALD W. BANNER,
June 20, 1979. *Commissioner of Patents and Trademarks.*

[984 O.G. 26]

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(18) **Regulations Relating to the Use of Patent and Trademark Office Records Facilities**
Establishment of Enforcement Procedures

Agency: Patent and Trademark Office, Commerce.
Action: Notice.
Summary: The Patent and Trademark Office is adopting procedures for enforcing existing regulations governing

the use of the Public Search Room for Patents and the Patent Examining Group Search Facilities by members of the public. Enforcement of the existing regulations is necessary, and is intended by these procedures, to carry out the commitment of the Office to the public to promote an atmosphere conducive to research and maintain the integrity of the files in the Public Search Room for Patents and in the Examining Group Search Facilities.

Effective Date: 6-30-78.

For Further Information Contact: Bradford R. Huther, Deputy Assistant Commissioner for Administration, Patent and Trademark Office, Washington, D.C. 20231, (703) 557-2290.

Supplementary Information: The procedures will apply in enforcing the regulations for the public use of records of the Public Search Room for Patents and the Patent Examining Group Search Facilities. The regulations of the Public Search Room for Patents were published in the Federal Register for July 14, 1976, 41 F.R. 29009, and incorporated in a Search Room User Agreement entered into by each person who is issued a User Pass. Regulations for Users of the Patent Examining Group Search Facilities were established under Rule 2 of the regulations of the Public Search Room for Patents and were published in the OFFICIAL GAZETTE of March 22, 1977, 956 O.G. 1118. The procedures appear below.

PROCEDURES FOR ENFORCEMENT OF THE REGULATIONS FOR THE PUBLIC USE OF RECORDS IN THE PUBLIC SEARCH ROOM FOR PATENTS AND THE PATENT EXAMINING GROUP SEARCH FACILITIES

Under applicable statutes and regulations, including 40 U.S.C. 486(c); 41 CFR 101-20.3; and appropriate sections of Department Organization Orders 30-3A and 30-3B of the Department of Commerce, the procedures appearing below are established.

Violation Involving the Security System

1. *Unauthorized removal of government property.*

(a) The Public Search Room for Patents is equipped with a security system designed to sound an alarm when an attempt to remove government property from the Public Search Room is detected. Each alarm signal triggered by a person passing through an exit to the Public Search Room will be investigated by security guards stationed at the Public Search Room exits. The person involved will be required to stop and allow the security guards to determine the cause of the alarm. If non-government property is the cause for the alarm, the person will be allowed to proceed without further delay. If unauthorized possession of government property is found to be the cause of the alarm, the person in whose possession the property is found will be advised that a violation has occurred and will be required to surrender the property to the Manager of the Public Search Room. An oral explanation for the possession of such property will be requested by the Manager.

(b) The Manager of the Public Search Room will immediately report each incident involving unauthorized possession of government property to the Deputy Assistant Commissioner for Administration by telephone, and if requested submit a written report, together with the government property and User Pass involved to the Deputy Assistant Commissioner for Administration.

(3) If it shall appear to the Deputy Assistant Commissioner for Administration that unauthorized possession of government property, detected by the security system, was inadvertent or otherwise unintentional, no further action will be taken. Otherwise, the Deputy Assistant Commissioner for Administration will request the person involved to show cause in writing why his or her User Pass should not be suspended or revoked pursuant to the terms of the Search Room User Agreement. A written decision will be rendered by the Deputy Assistant Commissioner for Administration after consideration of any timely submitted response.

Other Violations of the Public Search Room Regulations

2. *All other violations of the Public Search Room Regulations.*

(a) Each observed or reported violation will be investigated by the Manager of the Public Search Room. If a violation has occurred and is not denied, the person involved will be verbally requested by the Manager to comply with the regulations. If the person involved denies that a violation has occurred, or refuses to comply with a verbal request of the Manager to comply with the regulations, or violates the regulations after having agreed to comply with them, the person will be required to surrender his or her User Pass to the Manager of the Public Search Room.

(b) The Manager of the Public Search Room will submit a written report of each violation, and the User Pass, if surrendered, to the Deputy Assistant Commissioner for Administration.

(c) If the Deputy Assistant Commissioner for Administration is satisfied that a reported violation was inadvertent or otherwise unintentional, the User Pass, if surrendered, will be returned and no furt er action will be taken. In all other cases, the Deputy Assistant Commissioner for Administration will request the person involved to show cause in writing why his or her User Pass should not be suspended or revoked pursuant to the terms of the Search Room User Agreement. A written decision will be rendered by the Deputy Assistant Commissioner for Administration after consideration of any timely submitted response.

Violations of the Patent Examining Group Search Facilities Regulations

3. *Violations of the Regulations for Users of the Patent Examining Group Search Facilities.*

(a) Each observed or reported violation will be investigated by Authorized Official. If a violation has occurred, and is not denied. the person involved will be verbally requested to comply with the regulations. If the person involved denies that a violation has occurred, or refuses to comply with a verbal request to comply with regulations, or violates the regulations after having agreed to comply with them, the person involved will be required to surrender his or her User Pass to the Authorized Official.

(b) The Authorized Official will submit a written report of each violation, and the User Pass, if surrendered, to the Deputy Assistant Commissioner for Patents.

(c) If the Deputy Assistant Commissioner for Patents is satisfied that violation was inadvertent or otherwise unintentional, the User Pass, if surrendered, will be returned and no further action will be taken. In all other cases, the Deputy Assistant Commissioner for Patents will request the person involved to show cause in writing why his or her User Pass should not be suspended or revoked. A written decision will be rendered by the Deputy Assistant Commissioner for Patents after consideration of any timely submitted response.

Penalties

4. *Factors to be Considered in Assessing Penalties.*

(a) Penalties will be determined on a case-by-case basis. A record of penalties imposed for given violations will be kept and made available to the public upon request.

(b) Due weight may be given to prior violations of the regulations in assessing whether any given violation is willful, deliberate or intentional.

(c) Prior violations of the regulations will be considered in determining any specific penalty to be imposed. Depending upon the circumstances, the penalty for a first offense may range from an oral or written warning to a 60-day suspension of the User Pass. For a second

offense, the penalty may be a suspension of from 5 days to 1 year. For a third offense, the penalty may range from a 30-day suspension to revocation of the User Pass.

General Provisions

5. *Use of Search Facilities During Suspension or After Revocation of User Pass.*

No individual will be permitted to use the Public Search Room for Patents or the Patent Examining Group Search Facilities while his or her User Pass is suspended or revoked.

6. *Temporary User Pass.*

Any person whose User Pass was surrendered, but not suspended or revoked, may be issued a temporary User Pass which shall be valid until the User Pass is returned or a decision is rendered pursuant to paragraph 1(c), 2(c), 3(c).

7. *Absence of the Deputy Assistant Commissioner for Administration.*

In the absence of the Deputy Assistant Commissioner for Administration, the Director of the Office of Patent and Trademark Services will carry out the functions and responsibilities assigned to the Deputy Assistant Commissioner for Administration in paragraph 1(b) and (c) and 2(b) and (c).

8. *Absence of the Manager of the Public Search Room.*

In the absence of the Manager of the Public Search Room, the Acting Manager will carry out the duties and responsibilities assigned to the Manager in paragraphs 1(a), 1(b), 2(a) and 2(b).

9. *Assistance.*

The Manager of the Public Search Room and the Authorized Official may, when necessary request the Security Officer of the Patent and Trademark Office or the GSA to provide assistance in carrying out their function in paragraphs 1(a), 2(a), and 3(a).

10. *Petitions.*

A decision rendered by the Deputy Assistant Commissioner for Administration, the Director of the Office of Patent and Trademark Services, or the Deputy Assistant Commissioner for Patents may be reviewed on petition to the Commissioner.

LUTRELLE F. PARKER,
May 5, 1978. *Acting Commissioner of Patents and Trademarks.*

[970 O.G. 114]

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(19) **Revised Regulations and Procedures for Visitors to the Patent and Trademark Office**

Effective Oct. 1, 1982, all visitors to the Patent and Trademark Office (PTO) will be required to obtain and display a visitor pass while using PTO facilities. Passes will be available in building CP3, Room 1A01.

The current User Agreement will be replaced by the following Regulations for Visitors to the PTO:

These regulations are established for members of the public using the facilities of the PTO and will be enforced by designated officials of the PTO.

All persons using the facilities of the PTO are subject to regulations governing conduct on property under the charge and control of the General Services Administration which appear in 41 CFR Subpart 101–20.3 (41 CFR §§101–20.300 through 101–20.314).

Packages, briefcases and other personal effects brought into the PTO are subject to search by authorized personnel for reasonable cause.

All persons must comply with posted Official Notices.

User Passes

1. Individuals visiting any area of the PTO must obtain and display a valid, non-transferable User Pass at all times while on the premises.
2. Permanent User Passes may be obtained from the Manager of the Patent Public Search Room. The first User Pass is issued at no charge. Duplicate or replacement User Passes will be provided at a cost of $5.00 per Pass. Temporary User Passes may be obtained at no cost and are valid through the expiration date stamped thereon.
3. Permanent and Temporary User Passes must be surrendered to authorized PTO officials upon request for cause.

Use of Search Areas

4. When searching in a patent examining organization, visitors must register with the designated representative and sign a log indicating time entering and leaving the area, User Pass number, and class(es) and subclass(es) searched.
5. Documents removed from the files must be promptly returned to their proper location after use. No documents may be removed from the area in which they were obtained without specific authorization from a Group Director or a Supervisory Patent Examiner.
6. Use of Patent Examining Group search areas is strictly limited to searching materials unavailable in the Patent Public Search Room or the Scientific Library. Examining Group search areas may be used only when such use does not conflict with the regular business of the organization.
7. Trademark registrations may not be removed from the secured bundles in the registered file. Photocopying from bound volumes of trademarks is prohibited.

Prohibitions

8. Smoking and consumption of food or beverages in other than designated areas.
9. Loud talking or any conduct which is disruptive to others.
10. Use of radios, typewriters, photographic equipment, dictation equipment, and like items without permission from a designated official of the PTO.
11. Improper use, mutilation, destruction or removal of patent or trademark records or government property.
12. Reserving seats or work areas.
13. Affixing messages to walls, telephone booths or other government property, except designated message boards.
14. Use of the PTO as a mailing address, and use of PTO stationery.

Hours of Operations

15. Use of PTO facilities is limited to the following hours on regular business days:

Patent Public Search Room, High Ceiling Area	8:00 am–6:00 pm
Low Ceiling Area and Mezzanine	8:00 am–8:00 pm
Trademark Search Library	8:00 am–5:30 pm
Scientific Library, Assignment Search Room, Microfilm Center, Patent Examining Organizations, and all other public access areas of the PTO	8:45 am–4:45 pm

THERESA A. BRELSFORD,
Sept. 8, 1982. *Acting Assistant Commissioner for Administration.*

[1023 O.G. 3]

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(20) **Unlawful Removal of Labels**

We have found a large number of security labels, torn from Search Room patent copies, in stack areas of the

Public Search Room. We remind persons removing security labels or otherwise mutilating Search Room patent copies, or removing Search Room patent copies from the Search Room without authorization, that such acts are criminal offenses punishable by fine, imprisonment or both.

You should be aware that engaging in such acts violates the prohibition against "the willful destruction of or damage to property; the theft of property." 41 Code of Federal Regulations §101-20.303. Violations are punishable by "a fine of not more than $50 or imprisonment of not more than 30 days, or both." 41 Code of Federal Regulations §101-20.315.

You should also be aware that engaging in such acts subjects you to punishment under the following criminal provision in Title 18 U.S. Code, §2071:

> (a) Whoever willfully and unlawfully conceals, removes, mutilates, obliterates, or destroys, or attempts to do so, or, with intent to do so takes and carries away any record, proceeding, map, book, paper, document or other thing * * * shall be fined not more than $2,000 or imprisoned not more than three years, or both.
>
> (b) Whoever, having custody of any such record, proceeding, map, book, document, paper, or other thing, willfully and unlawfully conceals, removes, mutilates, obliterates, falsifies, or destroys the same, shall be fined not more than $2,000 or imprisoned not more than three years, or both; and shall forfeit his office and be disqualified from holding any office under the United States.

UNLESS THE REMOVAL OF SECURITY LABELS FROM SEARCH ROOM PATENT COPIES CEASES, THE OFFICE WILL TAKE APPROPRIATE ACTION, SUCH AS EXERCISING ITS AUTHORITY UNDER 41 CODE OF FEDERAL REGULATIONS§101-20.301 TO INSPECT PACKAGES, BRIEFCASES AND OTHER CONTAINERS BROUGHT INTO, WHILE ON, OR BEING REMOVED FROM THE SEARCH ROOM.

GERALD J. MOSSINGHOFF,
Mar. 28, 1983. *Commissioner of Patents and Trademarks.*

[1029 OG 136]

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(21) Use of Certificate of Correction Forms

The purpose of this notice is, to once again, remind patentees and their attorneys and agents to submit the text of any correction under 37 CFR 1.322 and 1.323 on the Certificate of Correction form, PTO-1050, which is available free of charge from the Patent and Trademark Office. The presentation of all corrections on this form permits its use as camera copy for prompt, direct offset printing of the Certificate of Correction.

Instructions for use of Form PTO-1050 are printed on the top portion thereof, and are also set forth, in further detail, in Section 1402.02 of the Manual of Patent Examining Procedures. It is especially important that the typing be clean and clear. Both thin, light type and heavy, smudged type should be avoided. Changes and corrections are preferably made by use of white opaque correction fluid.

The typing should be within the borders printed on the form and a two-inch blank space should be left at the bottom of the last page of the form for the placement of the signature of the Attesting Officer.

Both sheets of the printed form should be forwarded to the Office. The copies should be stapled together only at the upper left-hand margin at the indicated location.

Copies of form PTO-1050 may be obtained, as needed, from either the Correspondence and Mail Division in Building 2, or from the receptionist in the lobby of Building 3, Crystal Plaza, Arlington, Va.

RICHARD J. SHAKMAN,
May 10, 1977. *Assistant Commissioner for Administration.*

[959 O.G. 3]

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(22) ARS Patent Culture Collection Initiation of Fees

As a result of recent policy changes, the ARS Culture Collection (NRRL) henceforth will charge a user fee for deposit and distribution of microbial cultures maintained in conjunction with U.S. and foreign patent applications. User fees apply to patent cultures only; as it has in the past, the ARS Culture Collection will continue to exchange other microbial germplasm with the scientific community without charge. The fee schedule will apply to all patent cultures deposited after Sept. 30, 1983. A fee of $500.00 will be charged for each strain, payable at the time of deposit. A $20.00 fee will be charged for the distribution of all released patent cultures that have been deposited after Sept. 30, 1983. There will be no charge for distribution of patent cultures already on deposit or for others received before this date. Checks, in U.S. dollars, should be made payable to the Agricultural Research Service, USDA. USDA laboratories and designated cooperators will be exempt from fee assessment. The types of microorganisms accepted by the ARS Culture Collection are the same as announced in the past and include industrially important bacteria, yeasts, molds, and *Actinomycetales.* Viruses and highly pathogenic or especially fastidious microorganisms are not accepted. Further information on types of microorganisms accepted and conditions for deposit may be obtained by contacting A. J. Lyons, Curator, ARS Patent Culture Collection, Northern Regional Research Center, USDA-ARS-NCR, 1815 N. University St., Peoria, Ill. 61604 (Tel. 309/685-4011).

[1033 OG 26]

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(23) Notice to Official Gazette Subscribers

The Patent and Trademark Office announces a change in the point of contact for subscribers who have not been receiving all of their copies of the patent and/or trademark sections of the *Official Gazette,* MPEP Revisions, Trademark Rules of Practice, Annual Indices, and all other patent and trademark publications.

The Superintendent of Documents advises that expiration notices are sent out approximately three months in advance of the expiration date. However, subscribers should not be dependent upon such notices. In the event that a notice is not received within two months of the expiration date, the subscriber should renew his subscription with the Superintendent of Documents and *attach a label* from the envelope in which he receives the gazette, together with a check covering the amount of the subscription.

All correspondence and inquiries concerning subscription services to patent and trademark related publications, and requests for reinstatement of subscriptions should be directed to:

Mr. C. A. LaBarre
Asst. Public Printer
Superintendent of Documents (SD)
Government Printing Office
Washington, D.C. 20401

This notice is effective with the publication date and supersedes the notice published on this subject in 939 O.G. 1, dated October 7, 1975.

RICHARD J. SHAKMAN,
Mar. 14, 1978. *Assistant Commissioner for Administration.*

[969 O.G. 2]

(24) **Subscription Pricing Information**

The annual subscription prices on the following publications have been changed as indicated below:

Title: Official Gazette, Patent Section

First-class domestic mailing	$360.00
Fourth-class domestic mailing	250.00
Fourth-class foreign mailing	312.00
Single copies each, domestic	7.50
Single copies each, foreign	9.40

Back issues will not be furnished.

This change is effective with Government Periodicals and Subscription Services Price List 36, dated Summer, 1982.

Foreign first-class mailing rates will be furnished upon request. Direct all inquiries and subscription requests to:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Checks for subscription orders should be made payable to the Superintendent of Documents. If a Deposit Account with the Superintendent of Documents is to be used, please include the Deposit Account Number with the order.

THERESA A. BRELSFORD,
June 24, 1982. *Acting Assistant Commissioner for Administration.*

[1020 O.G. 30]

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(25) **Subscription Pricing Information**

The annual subscription prices on the following publications have been changed, as indicated below:

Title: Patent and Trademark Office Notices

First-class domestic mailing	$75.00
Second-class domestic mailing	60.00
Second-class foreign mailing	75.00
Single copies: not available	

Foreign first-class mailing rates will be furnished upon request. Direct all inquiries and subscription requests to:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Checks for subscription orders should be made payable to Superintendent of Documents. If a Deposit Account with the Superintendent of Documents is to be used, please include the Deposit Account Number with the order.

This change is effective with Government Periodicals and Subscription Services Price List 36, dated Summer, 1982.

THERESA A. BRELSFORD,
June 3, 1982. *Acting Assistant Commissioner for Administration.*

[1019 O.G. 54]

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(26) **Rules Service Company Address Change**

The Patent and Trademark Office has been notified of a change in the address and telephone number of the Rules Service Company which publishes a looseleaf Rules of Practice in Patent and Trademark Cases with a revision service. The new address and telephone numbers are:

Rules Service Company
4341 Montgomery Avenue
Bethesda, Maryland 20014
(301) 656-4660

SIDNEY A. DIAMOND,
Apr. 7, 1980. *Commissioner of Patents and Trademarks.*

[994 O.G. 10]

(27) **Defensive Publication Program**

A change in the numbering system of Defensive Publication documents will be implemented, effective with the issue of November 4, 1980.

The numbering system will be as follows:

T XXXX XX

Sequential Document Number

Official Gazette Volume Number

Document Category. "T" denotes Technical Disclosure

The numbering system as announced in 869 O.G. 687 remains in effect for the issues of December 16, 1969 through October 1980.

RICHARD J. SHAKMAN,
Sept. 2, 1980. *Assistant Commissioner for Administration.*

[998 O.G. 38]

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(28) **Patent and Trademark Office Services**

The Patent and Trademark Office is making every effort to utilize its resources as effectively and efficiently as possible. However, delays in some services are being experienced. To improve services, the PTO is taking the following steps:

Beginning with the issue of January 1, 1980, the original formal drawing which is supplied by the patent applicant and is 8 1/2 by 14 inches (21.0 by 29.7 cm.) is being stored within the patented file in the Patent Search Division. This is a change from the earlier practice under which the drawing is stored in a separate location from the patent file wrappers. The new procedure will simplify obtaining the complete patented file. This procedure will be used for a three month trial period and then reevaluated for its effectiveness.

Effective December 3, 1979, sale of tokens and maintenance of all token operated photocopy and microfilm reader-printer equipment throughout the Patent and Trademark Office are being performed by a private contractor, T S Info Systems, Inc. (TSI). Improved quality and timeliness of copy service to the public are anticipated.

All token sales are made between the hours of 8:30 A.M. and 5:00 P.M. at the token sales booth in the Record Room located in Building CP-4. When purchasing tokens by check, please make the check payable to "TSI" rather than "Commissioner of Patents and Trademarks." Tokens will not be sold at the cashier's window in CP2.

Effective February 1, 1980, charges for tokens to PTO customer deposit accounts will no longer be accepted.

Effective immediately, no requests for new patent or trademark drawings will be accepted by the Patent and Trademark Office. New drawings will be prepared only for requests already received. All currently available drafting time and facilities are required to correct the backlog of drawings needing correction prior to issue. When this backlog has been eliminated, a notice will be issued to that effect and new drawings can again be prepared for the public.

Effective immediately, three additional special mail room boxes will be established in the PTO:

Box 4 will be used for all mail for the Office of Legislation and International Affairs.

Box 5 will be used for documents which are related to trademarks and for which *no fee* is required at the time of filing; e.g., amendments to applications and requests for extensions of time to file an opposition. For mail di-

rected to the Trademark Trial and Appeal Board, put "Attention TTAB" on the envelope in addition to "Box 5."

Box 7 will be used for reissue applications which are involved in litigation and any subsequently filed papers for these applications.

Mail appropriately addressed will be sorted and forwarded on a more timely basis.

Applicants and other users of the PTO services can assist in improving the efficiency of office by doing the following:

Use the following special PTO box numbers for forwarding particular types of mail. The boxes should be used only for the specified purpose.

Box 2—Replenishment of funds in deposit accounts.

Box 4—Mail for the Office of Legislation and International Affairs.

Box 5—"No fee" mail related to trademarks.

Box 7—Reissue applications for patents involved in litigation and any subsequently filed papers for these applications.

Box 8—All papers for the Office of the Solicitor.

Box 9—Coupon orders for U.S. patent and trademark copies.

Box 10—Orders for certified copies of patent and trademark applications.

Box PCT—Mail related to applications filed under the Patent Cooperation Treaty.

Only that material for which the special box was established should be enclosed.

The special box numbers have been established to allow forwarding of particular types of mail to the appropriate areas as quickly as possible. Such mail is forwarded directly to the appropriate area without being opened. Therefore, if any documents other than the specified type identified for each box are addressed to that box, they will be delayed in reaching the appropriate area for which they were intended.

Envelopes should be addressed:

Box _____
Commissioner of Patents and Trademarks
Washington, D.C. 20231

Consider the fact that some PTO services are experiencing delays, and allow sufficient lead time for services requested of the Office. Where possible, urgent items which require no fee should be hand delivered to the appropriate area.

Minimize the number of inquiries to the PTO regarding acknowledgment of receipt of applications, fee papers, orders for patent copies, etc.

Include a self addressed return post card with newly filed applications. The serial number assigned the application will be stamped on the post card, which will constitute the means by which the application can be identified.

Use commercial services for preparation of new patent and trademark application drawings.

On all papers which are filed in patent and trademark applications and are being sent to an examining group, include the appropriate identifying data, such as examining group number, examiner's name, and the number of the application paper to which the response is directed. The paper should also identify the type of document being presented (e.g., response to Office action #___, amendment, etc.). The name and telephone number of the individual representing the applicant also should appear on all papers.

These steps have been devised in an effort to minimize delays in services. We solicit the help and cooperation of the public.

SIDNEY A. DIAMOND,
Jan. 4, 1980. *Commissioner of Patents and Trademarks.*

[990 O.G. 184]

(29) **Service of Court Papers on the Commissioner of Patents and Trademarks**

Those having occasion to serve papers associated with court proceedings by mail are reminded that a special mailing address has been established to provide prompt forwarding to the Office of the Solicitor. The use of this address will ensure that the papers will not be delayed in dispatch. In court proceedings in which the Commissioner is a party, the notices of appeal to the U.S. Court of Appeals for the Federal Circuit and all service copies of papers filed in courts should be addressed:

Solicitor
Box 8
U.S. Patent and Trademark Office
Washington, D.C. 20231

Service copies of briefs and papers hand-carried to the Mail Room of the Patent and Trademark Office should likewise be addressed as shown above.

Joseph Nakamura,
Sept. 10, 1982. Solicitor.

[1023 O.G. 3]

(30) **Automated Search Experiments**

The United States Patent and Trademark Office (PTO) intends to carry out research and evaluation projects dealing with automated full-text searching of U.S. Patents.

To further this objective, the PTO has entered into an agreement with Mead Data Central to provide the PTO access to and support for the use of the LEXIS full-text system. Using that system, the PTO will test and evaluate the effectiveness of searching the full text of over 50,000 U.S. patents. As part of this experiment, the PTO will furnish to Mead Data Central a special compilation of tapes from an extensive library of computer tapes containing the full text of U.S. patents from 1970 to the present.

The PTO would welcome multiple experiments using the same or similar techniques and/or technology as Mead Data Central, and thus, the PTO is willing to enter into the same agreement, or a similar agreement on mutually agreeable terms, with any other responsible party, within 18 months from the date of this notice.

Additional information regarding this matter may be obtained from:

Donald P. Stein, Director
Office of Search Systems
U.S. Patent & Trademark Office
Washington, D.C. 20231
TEL: 703-557-3763

GERALD J. MOSSINGHOFF,
Aug. 3, 1981. *Commissioner of Patents and Trademarks.*

[1010 O.G. 3]

(31) **Sale of Copies of Reexamination Requests**

Copies of reexamination requests, all cited references, and the file wrapper and contents of the patent file for which reexamination is requested are available at a charge of $0.30 per page. Orders for such copies must indicate the control number assigned the reexamination request. Orders should be addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231, Attention: Customer Services Division.

GERALD J. MOSSINGHOFF,
July 31, 1981. *Commissioner of Patents and Trademarks.*

[1010 O.G. 4]

(32) **Availability of Concordances Between the United States Patent Classification and the International Patent Classification**

The Patent and Trademark Office announces that the 4th Edition of the Concordance which relates the U.S. Patent Classification (as revised to Apr. 9, 1979) to the Third Edition of the International Patent Classification, is now again available for sale by the U.S. Government Printing Office. Inquiries should be directed to:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
(Stock Number 003-004-00562-9) (Cost $6.50)

Also, a Reverse Concordance, which is the opposite of the above mentioned Concordance, is now available which relates the International Patent Classification to the U.S. Patent Classification. This Reverse Concordance will not be published, but is now available for loan to interested parties for copying at their own expense.

The loan copy, which consists of 517 pages, may be obtained by contacting:

Office of International Patent Classification
Crystal Square, Bldg. 4, Room 108
c/o Commissioner of Patents and Trademarks
Washington, D.C. 20231
Tel.: (703) 557-3756

RENE D. TEGTMEYER,
Nov. 17, 1981. *Assistant Commissioner for Patents.*

[1013 O.G. 36]

(33) **Simultaneous Issue of Patents**

Applicants and their attorneys who desire the simultaneous issue of allowed applications must submit the request to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231
Attention: Office of Publications
CP-2, Room 5C26

The request must contain the following information about *each* allowed application for which simultaneous issue is requested:

(1) serial number
(2) filing date
(3) name(s) of inventor(s)
(4) title of invention
(5) date of allowance

Separate copies of the request must accompany *each* Issue Fee Transmittal (PTO-85b).

Questions concerning this practice may be directed to Mr. Stanley J. Bania, Director, Office of Publications, Area Code (703) 557-3794.

RICHARD J. SHAKMAN,
Aug. 25, 1978. *Assistant Commissioner for Administration.*

[974 O.G. 16]

RECORDS AND FILES

(34) **Assignee Names**

Effective April 1, 1976, only the first appearing name of an assignee will be printed on the patent where multiple names for the *same* party are identified on the Base Issue Fee Transmittal form, POL-85b. Such multiple names may occur when both a legal name and an "also known as" or "doing business as" name is also included. This printing practice will not, however, affect the existing practice of recording assignments with the Office in the Assignment Division. The assignee entry on form POL-85b should still be completed to indicate the assignment data as recorded in the Office. For example, the assignment filed in the Office and therefore the POL-85b assignee entry might read "Smith Company doing business as (d.b.a.) Jones Company." The assignee entry on the printed patent will read "Smith Company."

For purposes of compiling and publishing the 1976 Annual Index of Patentees, this change will be retroactive to patents issuing on January 6, 1976.

RICHARD J. SHAKMAN,
Dec. 17, 1975. *Assistant Commissioner for Administration.*

[942 O.G. 186]

(35) **Submission of Uniform Assignee Names on the Issue Fee Payment Form PTOL-85b**

The Patent and Trademark Office is experiencing problems when computer-sorting assignee names for the Patentee Index because of the non-uniform use of the names of certain companies and corporations on the issue fee payment form PTOL-85b. The use of different spellings or nomenclature for the same company requires the Office to expend time and effort to determine whether the various name forms are in fact for the same company. If such inconsistencies are not corrected, patents to the same company will appear in different locations in the Patentee Index. An example of inconsistent use is "ABC Company, Ltd." and "ABC Co., Limited."

Therefore, persons who list assignee names on issue fee payment form PTOL-85b should ensure that the same company name form is used for all patents issuing to a particular company.

RICHARD J. SHAKMAN,
Nov. 17, 1977. *Assistant Commissioner for Administration.*

[965 O.G. 8]

(36) **Title of Invention Carried on Office Records**

The Patent and Trademark Office is experiencing an increased incidence in the number of newly filed applications in which the title of the invention is inconsistent within the papers. This has resulted in applicants requesting correction of the official filing receipt in many instances to indicate the title preferred by applicants.

Hereafter, whenever the title of the invention appears inconsistent within the papers of a newly filed application for patent, the records of the Office will carry the title as indicated on the first page of the specification and no corrected filing receipt will be issued to indicate another title. Note that 37 CFR 1.72(a) indicates that the title of the invention should appear as a heading on the first page of the specification.

It should also be noted that applicant may amend the title under 37 CFR 1.115 if any changes are subsequently desired before issuance of a patent.

BRADFORD R. HUTHER,
Aug. 31, 1977. *Acting Assistant Commissioner for Administration.*

[962 O.G. 23]

(37) **New System To Monitor Patent Applications**

During this summer the Patent and Trademark Office will begin implementation of a new office-wide computer system, the Patent Application Locator and Monitor System (PALM 3), for monitoring the location and status of pending patent applications. The system will also have the ability to print data on certain form letters such as the Notice of Allowance, using computer-controlled printers located in the Examining Groups. This will permit the Notice of Allowance to be printed and mailed by the Groups shortly after the Examiner has decided that an application is in condition for allowance. Under the new system, the Notice of Allowance will be mailed prior to completion of final issue revision by the Group clerical staff. In those applications where an Examiner's Amendment is required, it will normally be mailed as an attachment to the Notice of Allowance.

When existing printing backlogs have been eliminated, this accelerated mailing should reduce the time between allowance by the examiner and issuance of the patent grant in most cases. The nature and/or extent of the revisions or processing requirements subsequent to mailing of the Notice of Allowance may result in little or no reduction in the time required for the printing of a few patents. In addition, it is possible that, as a result of this additional processing, withdrawal or correction of the Notice for a given application may be required. For instance, prosecution might be reopened as a result of the Quality Review Program. In situations where the Base Issue Fee has been paid and the Notice of Allowance is subsequently withdrawn, the applicant may request that a refund be made or that the fee be credited to a Deposit Account.

Applicants will continue to receive a three part Notice of Allowance packet, but, as a result of automated printing, the Notice will be produced in a slightly revised format. This new format will have the following application data printed thereon:

—Serial Number
—Filing Date
—Total Claims Allowed
—Date of Mailing
—Examiner Name and Group Art Unit
—First Named Applicant
—Title of the Invention
—Base Issue Fee Due (Utility Applications Only)
—Attorney's Docket Number
—Class and Subclass Where Issued

Copy (a) of the new Notice of Allowance will be used as applicant's record copy in the current manner. Copy (b) will continue to be used as a transmittal for the fee with copy (c) required when a charge to a deposit account is authorized. The new version of copy (c) will also have a section to notify the Office of a change in an inventor's address. Note that this address change need not be signed by the inventor. This procedure eliminates the need for the separate Inventor's Address Change form (PTOL-231) now in use.

One other change to current practice will also be implemented as a result of the new system. Beginning with patents issuing in the late fall of this year, advance orders for patent copies will only be sent to the correspondence address of record in the application. This practice will permit computer generation of mailing labels for the orders and thereby eliminate the need for the separate, pink Advance Order form (PTO-721) now in use. Requests for advance orders will now be made in a special section of copy (b) of the Notice of Allowance. During the transition from the old order method to the new, it will be necessary to send some advance orders to the correspondence address of record in the application rather than some other address as has been requested on an earlier submitted Advance Order Form.

While the major impacts on the public will be limited to those discussed above, one other minor matter should be mentioned. It is anticipated that, due to the absence of data in the master data base, some information occasionally may not be printed on the Notice of Allowance or on other form correspondence. However, this does not necessarily mean that a corrected Notice or form letter is required. Furthermore, since the data base is not used for printing of the patent grant, the missing information should appear on the final issued patent if it is in the application file wrapper. This problem is expected to diminish as the implementation of the system proceeds and the data base becomes more complete. The cooperation of applicants and their representatives during this system implementation is sincerely appreciated by the Patent and Trademark Office.

SIDNEY A. DIAMOND,
June 16, 1980. *Commissioner of Patents and Trademarks.*

[997 O.G. 9]

(38) **FEES AND PAYMENT OF MONEY**
DEPARTMENT OF COMMERCE
Patent and Trademark Office
37 CFR Parts 1 and 2
Revision of Patent and Trademark Fees

Agency: Patent and Trademark Office, Commerce

Action: Final Rule.

Summary: The Patent and Trademark Office is amending the rules of practice in patent and trademark cases to establish fee related procedures and fees in amounts which would comply with the requirements of either Public Law 96-517 or H.R. 6260, dependent upon which is effective on Oct. 1, 1982. This action is necessary at this time in view of the requirements to establish fees and procedures contained in Public Law 96-517 and the requirements which would also be present under H.R. 6260 enacted as a Public Law. This final rule is being issued in two sections with the first section relating to patent fees and the second section relating to trademark fees. This final rule is also being issued in alternative form so that the proper fees and procedures will become effective on Oct. 1, 1982, under either Public Law 96-517 or the Public Law which results from enactment of H.R. 6260. Thus, if Public Law 96-517 remains fully effective on Oct. 1, 1982, the rule changes contained herein which are common to Public Law 96-517 and H.R. 6260, as well as those specific to Public Law 96-517, contained in Alternative A of each section, will become effective. Upon enactment of H.R. 6260 as a Public Law prior to Oct. 1, 1982, the rule changes contained herein which are common to Public Law 96-517 and H.R. 6260, as well as those specific to H.R. 6260, contained in Alternative B of each section, will become effective. Thus, the intended effect of this action is to adopt rules which will be effective on Oct. 1, 1982, establishing patent and trademark fees and procedures regardless of whether Public Law 96-517 remains fully effective or whether H.R. 6260 has been enacted.

Effective Date: Oct. 1, 1982. However, prior to Oct. 1, 1982, the Department of Commerce will publish a document confirming the amendments under either Alternative A or Alternative B set forth herein depending upon enactment of H.R. 6260 as a Public Law.

For Further Information Contact: As to the patent rules contact R. Franklin Burnett by telephone at (703) 557-3054 or by mail addressed to the Commissioner of Patents and Trademarks, Attention: R. Franklin Burnett, Room 3-11A13, Washington, D.C. 20231.

For Further Information Contact: As to the trademark rules contact Miss Maude Williams by telephone at (703) 557-2222 or by mail addressed to the Commissioner of Patents and Trademarks, Attention: Miss Maude Williams, Room 3-11C17, Washington, D.C. 20231.

Supplementary Information:

SECTION I—REVISION OF PATENT FEES

Background

A notice of proposed rulemaking was published in the *Federal Register* on June 28, 1982, at 47 FR 28042-28063 and in the *Official Gazette* on June 29, 1982, at 1019 O.G. 57-120. An oral hearing was held on July 9, 1982. Fourteen written letters and statements were submitted. Five persons testified at the oral hearing. Full consideration has been given to all of the letters, statements, and testimony.

Objectives of Rule Changes

These rule changes are designed primarily to implement the Patent and Trademark Office fees which are provided for by Public Law 96-517, or which would be set in, or provided for by, the Public Law resulting from H.R. 6260.

Public Law 96-517

Public Law 96-517 presently requires that fees be established by the Commissioner for the processing of pa-

tent applications from filing through issuance or abandonment, for maintaining a patent in force, and for providing all other services and materials related to patents. Public Law 96-517 requires that by Oct. 1, 1982, fees for the processing of patent applications, other than design patents, be set by the Commissioner to recover in aggregate 25 per centum of the estimated average cost to the Office of such processing. Similarly, fees for processing design patents are to be set to recover in aggregate 50 per centum of the estimated average cost to the Office of such processing. By Oct. 1, 1982, fees for all other services or materials related to patents are to be set to recover the estimated average cost to the Office of performing the service or furnishing the material.

Public Law 96-517 also requires that fees be set for maintaining all patents filed on or after Dec. 12, 1980, other than design patents, in force. It also requires that maintenance fees must recover 25 per centum of the estimated cost to the Office of processing patent applications, other than design patent applications, by the fifteenth fiscal year following Dec. 12, 1980. Under Public Law 96-517, the maintenance fees are due 3½, 7½, and 11½ years after grant of the patent.

Public Law 96-517 is presently effective and this rule change is designed to implement the fee provisions of that law if it remains fully effective on Oct. 1, 1982. The changes which will become effective on Oct. 1, 1982, under Public Law 96-517 (without enactment of H.R. 6260) are (1) the rule changes common to Public Law 96-517 and H.R. 6260, and (2) the rule changes under only Public Law 96-517, which appear in Alternative A.

H.R. 6260

On June 8, 1982, the House of Representatives passed H.R. 6260. H.R. 6260 would establish a number of statutory fees which the Commissioner is required to charge. Among the more significant of these are fees for filing a patent application, issuing, and maintaining a patent in force. The fees for filing a patent application and issuing a patent would be set forth in §41(a) of Title 35, United States Code, as proposed to be amended by H.R. 6260. Certain other fees, such as appeal fees, the fee for filing a disclaimer, and fees for filing petitions seeking to revive an abandoned application and for extensions of time, would also be set in §41(a) of Title 35, United States Code. Section 41(b) of Title 35, United States Code, as proposed to be amended by H.R. 6260, would set forth the fees for maintaining a patent in force. These fees would be due 3½, 7½, and 11½ years after grant of the patent or within a grace period of six months thereafter. Section 41(c) of Title 35, United States Code, as proposed to be amended by H.R. 6260, would provide for the acceptance of maintenance fees after the statutory grace period under certain conditions and with certain effects.

H.R. 6260 would also provide for the reduction by 50 per centum in the fees paid under §41(a) and (b) of Title 35, United States Code, by independent inventors, small business concerns, and nonprofit organizations, who meet the definitions established, and to be established therefor.

Section 41(d) of Title 35, Untied States Code, as proposed to be amended by H.R. 6260, would also provide that the Commissioner establish fees for all other processing, services, or materials related to patents which are not covered in §41(a)–(c) of Title 35, United States Code, to recover the estimated average cost to the Office of the processing, services, or materials.

The changes which will become effective on Oct. 1, 1982, *upon enactment of H.R. 6260 as a Public Law prior to Oct. 1, 1982*, are (1) the rule changes common to Public Law 96-517 and H.R. 6260, and (2) the rule changes under H.R. 6260, which appear in Alternative B. H.R. 6260 includes other provisions which would be the subject of other proposals for rulemaking.

DISCUSSION OF SIGNIFICANT CHANGES

This rulemaking places into the appropriate sections of Title 37, Code of Federal Regulations, the various fees which are due on filing, during the pendency of a patent application, or during the term of a patent. A number of significant changes are made in order to implement either Public Law 96-517 or H.R. 6260.

Under H.R. 6260, and Alternative B of this rule making, fees under §41(a) and (b) of Title 35, United States Code, would be reduced by 50 per centum for independent inventors, small business concerns, and nonprofit organizations. H.R. 6260 would give the Commissioner authority to establish regulations defining independent inventors and nonprofit organizations. H.R. 6260 defines small business concerns by reference to §3 of the Small Business Act and regulations established by the Small Business Administration. This rulemaking, in Alternative B, implements the fee system which would be established by H.R. 6260 and lists all applicable fees.

* * * * *

Another significant change relates to fees established under Public Law 96-517 and which would be established by H.R. 6260 for petitions for extensions of time to take actions required by the Commissioner in an application. H.R. 6260 would establish a fee of $50 for filing a petition for a first one-month extension of time, an additional fee of $100 for filing a petition for a second one-month extension of time which would expire two months after the end of the time period set for taking action, and an additional fee of $200 for filing a petition for a third one-month extension of time which would expire three months after the end of the time period set for taking action. A fourth one-month extension with an additional fee of $200 could be requested if additional time was available under the statute. Under H.R. 6260, the Commissioner would have authority to issue regulations providing when, within any maximum time period permitted by statute, petitions for extensions of time, and the required fee therefor, may be filed. The Commissioner would also not be precluded by H.R. 6260 from waiving the fee for filing a petition for an extension of time where the Office extends the period due to equity considerations or sufficient cause. This rulemaking implements the extension of time provisions of H.R. 6260 by permitting applicants in the majority of situations to file the petition for an extension of time and the fee at the time of and along with the filing of the response for which a non-statutory or shortened statutory time period has been set. This will reduce the amount of paperwork involved and should significantly reduce the expenses of applicants and the Office since resources now devoted to the separate processing of petitions for extensions of time will no longer be required to be expended thereon. The fees are set to provide a proper control on the number of extensions of time given. The same procedures relating to extensions of time which would be established under Alternative B and H.R. 6260 will also be established under Alternative A and Public Law 96-517. Thus, whether the rules are effective on Oct. 1, 1982, under Public Law 96-517 and Alternative A, or under H.R. 6260 and Alternative B, the same procedures for obtaining extensions of time will be in effect with the only differences being in the amount of the fees.

Another significant change relates to the implementation of the fee for revival of an unintentionally abandoned application which would be authorized under H.R. 6260. H.R. 6260 would establish two different fees for filing petitions with different standards to revive abandoned patent applications. The same two fees would be applicable to petitions to accept the delayed payment of the fee for issuing a patent. Under H.R. 6260, a fee of $50 is established in §1.17(1) for filing a petition for revival under §§133 or 151 of Title 35, United States Code, in accordance with standards presently in effect where the delay resulting in the abandonment, or the delay in payment of the issue fee, was unavoidable. Under H.R. 6260, a fee of $500 is established in §1.17(m) for filing each petition for revival, or for acceptance of the delayed payment of an issue fee, where the abandonment or the failure to pay the issue fee was

unintentional. A mere statement that abandonment was unintentional plus the $500 fee is all that is required in this case for this purpose. Under H.R. 6260 and this rulemaking an applicant would have a choice of which petition and fee to file seeking revival depending on the circumstances involved. The changes discussed in this paragraph cannot be made effective without enactment of H.R. 6260 as a Public Law.

The rulemaking also provides for fees for filing certain petitions which have, in some cases, heretofore, been decided without a charge. These fees are established under Public Law 96-517 and are provided for by the amendment of §41(d) of Title 35, United States Code, which would be introduced by H.R. 6260. Under §41 of Title 35, United States Code, as amended by Public Law 96-517 or as it would be amended by H.R. 6260, fees are authorized for the processing of various petitions desiring certain actions to be taken regarding patent applications, for the recording of assignments, for reexamination of patents, and for the processing of international applications under the Patent Cooperation Treaty. In general, fees are not being required for those petitions which are supervisory in nature. For example, where applicants are petitioning from an allegedly improper action of the examiner, it is felt that such petitions should be processed and decided without charge since they are not asking for any special privilege but are attempting to correct an allegedly incorrect Office holding. The changes discussed in this paragraph will be in effect on Oct. 1, 1982, whether the rules become effective under Public Law 96-517 and Alternative A, or under H.R. 6260 and Alternative B.

Many of the fees currently set forth in §1.21 are being increased to reflect the cost of currently performing that service.

DISCUSSION OF SPECIFIC SECTIONS CHANGED

The sections changed are grouped in this proposal under three different categories. Those changes which are common to Public Law 96-517 and H.R. 6260 appear first and are numbered 1–54. Those changes which relate only to Public Law 96-517 appear as Alternative A and are numbered 55–62. Those changes which are dependent upon enactment of H.R. 6260 appear as Alternative B and are numbered 63–71. The changes common to Public Law 96-517 and H.R. 6260 will become effective on Oct. 1, 1982, whether or not H.R. 6260 is enacted as a Public Law.

• • • • •

Upon enactment of H.R. 6260 as a Public Law prior to Oct. 1, 1982, Alternative B will become effective on Oct. 1, 1982, in which case Alternative A will not become effective.

Rule Changes Common To Public Law 96-517 and H.R. 6260

The following sections are changed, effective Oct. 1, 1982, under either Public Law 96-517 or H.R. 6260:

Section 1.11 is amended to change the reference for the reexamination request fee to §1.20(c).

Section 1.12 is amended to break the section into four paragraphs. Paragraph (a) maintains current practice but adds specific reference to §1.19(a)(5) which sets the cost of copies.

Paragraph (b) maintains current wording except for inserting "patent" after "abandoned" and changing "his" to "applicant's". Paragraph (c) includes new language relating to obtaining copies of assignment records not open to the public. Access can be obtained only with the applicant's permission or by petition with fee to the Commissioner for such access in particular situations. No change in the showing required by petition to obtain access is intended by this amendment. Paragraph (d) contains present language except for reference to the specific rule which sets forth the charge for time consumed in making assignment searches.

New paragraph (e) of §1.14, sets forth the two ways in which access can be obtained to patent applications which are not open to the public. The two ways are (1) by petitioning and paying the petition fee and approval of the Commissioner of such petition and (2) by obtaining written approval from the applicant.

New §1.19 provides fees for copies of various documents supplied by the Office. The fees have been grouped into 5 paragraphs. New paragraph (a) provides fees for uncertified copies. Subparagraphs (a)(1) and (2) indicate the prices of printed patent copies. Subparagraph (a)(3) provides a single fee for a copy of an application, as filed, for each 50 pages, or fraction thereof. This practice should make it much easier to determine the amount of the required fee. Subparagraph (a)(4) sets a single fee for a copy of each 100 pages, or fraction thereof, of a patent file wrapper. Subparagraph (a)(5) provides for a charge of 30 cents per page for copies of Office records other than those covered by subparagraphs (a)(1) through (4). Subparagraph (a)(6) provides a fee for a microfiche copy of a microfiche.

Paragraph (b) of §1.19 sets fees for certified copies of Office documents. Subparagraph (b)(1) sets a fee for certifying Office records. Subparagraph (b)(2) provides a single fee for searching assignment records, preparing an abstract of the title and certification thereof. Subparagraph (b)(3) provides a fee for comparing copies not prepared by the Office prior to certification in order to provide basis for certification. Paragraph 1.19(c) sets the fees for subscribing to all of the patents issued annually in particular subclasses. This charge is in addition to the normal copy charge under §1.19(a)(1) and (2). Paragraph 1.19(d) sets the fee for providing patent copies to libraries under 35 U.S.C. 13. Paragraph 1.19(e) provides fees for lists of United States patents in particular subclasses.

Section 1.21 is amended to contain those miscellaneous fees which do not relate to the topics covered in §§1.16–1.20. All of the fees in §1.21 are established under the authority given the Commissioner by 35 U.S.C. 41(d) as amended by Public Law 96-517 or as proposed in H.R. 6260. Paragraph 1.21(a) establishes fees for admission to the examination for registration to practice, registration, reinstatement and issuance of certificates of good standing of patent attorneys and agents. Subparagraph 1.21(b)(1) sets forth the fee for establishing and reinstating deposit accounts, while subparagraph 1.21(b)(2) sets forth the fee due when the balance at the end of each month is below $40. Paragraph 1.21(c) sets the fee for filing a disclosure document. Paragraph 1.21(d) sets the fee for renting a delivery box. Paragraph 1.21(e) sets the fee for an international-type search report. Although all national applications now receive what is known as an international-type search, if a report thereof is desired in addition to an Office action, the fee set in §1.21(e) is required. Paragraph 1.21(f) sets a fee for searching Office records for purposes not otherwise specified. Paragraph 1.21(g) sets the fee for tokens for copying machines. Paragraph 1.21(h) sets the fee for recording assignments, agreements, and other documents. Paragraph 1.21(i) sets forth the fee for publishing a notice of availability of a patent for licensing or sale in the *Official Gazette*. Paragraph 1.21(j) sets the fee for the Office providing a duplicate or replacement of a permanent Office user pass. Paragraph 1.21(k) indicates that the Commissioner may specify charges for items and services not otherwise specified at a level to recover the actual cost of providing such an item or service by the Office.

Section 1.24 is revised so that the denomination of coupons sold by the Office will be in more convenient amounts.

Section 1.25 is amended to provide, in paragraph (a), a reference to the fee for establishing a deposit account and a service charge if the end of the month balance is below $40.00. Paragraph (b) is amended by revising the present sentence to refer to post-issuance fees and by adding a second sentence which would specifically provide in the regulations for the possibility of an applicant giving a general authorization to charge any fee due under§§1.16–1.18 in a particular application to a deposit account during the entire pendency of the application.

This general authorization would not apply after the patent issues, e.g., to maintenance fees. The last sentence of paragraph (b) permits fees during reexamination to be charged to a deposit account by filing an authorization with the request for reexamination.

Section 1.26 is amended to provide in paragraph (a) that a withdrawal of a request for an oral hearing will not entitle appellant to a refund. Paragraph 1.26(a) raises the amount which will not be refunded without specific request from fifty cents to one dollar. Paragraph (b) relating to refunds of international search fees during subsequent examination of a national application is deleted since such refunds are now covered by reductions in the appropriate fees paid under §1.445 rather than solely by direct refunds. Paragraph (c) is amended to bring the spelling of "requester" into conformance with that used in other sections of the regulations.

Section 1.45 is amended to provide in paragraphs (b) and (c) for a petition and petition fee to be filed to correct misjoinder of inventorship situations in pending applications. The fee will cover the additional time required by the Office to process such applications.

Section 1.47 is amended to provide for petitions and fees for filing applications signed by less than all inventors, or a person not the inventor.

Section 1.51 is amended to refer to the filing fees in new §1.16 and to add a new paragraph (c) indicating that applicants may file authorizations to charge fees required under any of §§1.16–1.18 to deposit accounts.

Section 1.52 is amended to add a reference in paragraph (a) to new paragraph (d). New paragraph (d) provides in the rules for filing an application in a language other than English if a verified English translation and fee under §1.17(k) are timely submitted.

Section 1.55 is amended in paragraph (b) to require a petition and fee for processing priority papers submitted after the issue fee is paid.

Section 1.75 is amended to add a reference to §1.16 and a sentence referring to the fee for multiple dependent claims set forth in §1.16(d).

Section 1.85 is amended to delete the sentence relating to mounting of informal drawings.

Section 1.86 is removed to delete the reference to the Office draftsman making drawings since such service is no longer available.

Section 1.102 is amended by revising paragraph (a) and adding new paragraphs (c) and (d). Revised paragraph (a) refers to paragraph (b) and added paragraphs (c) and (d). Paragraph (c) requires a petition but no fee where the basis for the petition to make special is the applicant's age or health or the impact of the invention on improving the environment or conservation of energy. Paragraph (d) requires a petition and the fee set forth in §1.17(i) for petitions to make special on grounds other than those above.

Section 1.103 is amended in paragraph (a) to provide for filing a petition and the fee set forth in §1.17(i) for a suspension of action except that no fee would be required where the reason for the suspension is the fault of the Patent and Trademark Office. Paragraph (b) is amended to clearly indicate that suspensions are directed to actions by the Office and not responses by the applicant.

Section 1.104, paragraph (d) is amended to change the fee reference to correspond to §1.21(e).

Section 1.134 is added to indicate that unless applicant is notified of any non-statutory or shortened statutory period in an Office action, a maximum period for response of six months is allowed.

Section 1.135 is amended to provide that if no response is filed within the time set in the Office action under §1.134 or as it may be extended under §1.136, the application will be abandoned unless an Office action indicates that another consequence, such as disclaimer, will take place. Paragraph (b) is amended to include a reference to paragraph (a). Paragraph (c) is amended to add that applicant's reply must be a bona fide attempt to respond as well as to advance the case to final action in order for applicant to be given an opportunity to supply any omission.

Section 1.136 is amended to revise the title and provide for two distinct procedures to extend the period for action or response in particular situations. The procedure which is available for use in a particular situation will depend upon the circumstances. Paragraph 1.136(a) permits an applicant to file a petition for extension of time and a fee as in §1.17(a), (b), (c), or (d) up to four months after the end of the time period set to take action except (1) where prohibited by statute, (2) in interference proceedings, or (3) where applicant has been notified otherwise in an Office action. The petition and fee can be filed prior to or with the response. The filing of the petition and fee will extend the time period to take action up to four months dependent on the amount of the fee paid except in those circumstances noted above. Paragraph 1.136(a) will effectively reduce the amount of paperwork required by applicants and the Office since the extension will be effective upon filing of the petition and payment of the appropriate fee and without acknowledgment or action by the Office and since the petition and fee can be filed with the response. Paragraph (b) provides for requests for extensions of time upon a showing of sufficient cause when the procedure of paragraph (a) is not available. Although the petition and fee procedure of §1.136(a) will normally be available within 4 months after a set period for response has expired, an extension request for cause under §1.136(b) must be filed during the set period for response. The sentence in paragraph (b) relating to who may grant an extension under paragraph (b) is eliminated thereby providing additional flexibility to designate persons to act on requests under paragraph (b). Extensions of time in interference proceedings are governed by §1.245.

Section 1.165, paragraph (b) is amended to delete therefrom the last sentence which refers to a fee for mounting copies. Since little or no need has been found for this provision in the rules, it is deleted.

Section 1.171, as amended, adds a reference to §1.19 (b)(2) which sets forth the fee for title reports.

Section 1.177 is amended to require a petition and fee as set forth in §1.17(i) where it is desired that divisions of a reissue issue on different dates.

Section 1.181 is amended to indicate in paragraph (d) that if a petition to the Commissioner is filed under the provisions of a section which requires a petition fee and the required fee is not paid, the petition will be dismissed. The amendment to paragraph (g) deletes the reference to §1.183.

Section 1.182 is amended to add a sentence requiring any petition filed under this section to be accompanied by the petition fee set forth in §1.17(h).

Section 1.183 is amended to specifically refer to the inherent authority of the Commissioner to suspend or waive the rules at the Commissioner's initiative. The amendment also indicates the Commissioner's authority to designate others to act for the Commissioner in appropriate circumstances. The rule language also requires the payment of the petition fee set forth in §1.17(h) if a petition to suspend or waive the rules is filed.

Section 1.191 is amended to change the fee reference for filing a notice of appeal to §1.17(e) and delete the word "primary" since some actions which are subject to appeal are not made by a "primary" examiner.

Section 1.192, paragraph (a), is amended to refer to the fee for filing an appeal brief set forth in §1.17(f). The present language requiring a showing of sufficient cause for extensions of time for filing the brief and an indication that an oral hearing is desired at the time of filing the brief are removed from paragraph 1.192(a). Under the amendment to paragraph 1.192(a), the provisions of §1.136 will apply to extensions of time for filing the brief. The time for requesting an oral hearing is now set in §1.194(b).

Section 1.194 is amended to revise paragraphs (b) and (c) to refer to the fee for oral hearing in §1.17(g) and to indicate in paragraph (b) that any request for an oral hearing must be made within one month after the mailing date of the examiner's answer.

Section 1.197, paragraph (b), is amended to modify the last sentence relating to extensions of time to make the provisions of §1.136 applicable thereto. Paragraph 1.197(b) is also amended to limit requests for rehearing, reconsideration or modification of a Board decision to one. This will not significantly change present practice since such requests are now required to be filed within thirty days from the date of the original decision.

Section 1.231, paragraph (a)(1), is amended to change the reference to the fee for filing a request for reexamination to §1.20(c).

Sections 1.245 and 1.246 are amended to indicate that the provisions of §1.136 do not apply to time periods in interferences.

Section 1.263 is amended to add a reference to the fee for filing a disclaimer contained in §1.20(d).

New section 1.268 is added to provide a rule relating to the filing of interference settlement agreements. The rule generally follows 35 U.S.C. 135(c) and provides for filing of petitions and fees in paragraphs 1.268(b) and (c).

Section 1.292, paragraph (a), is amended to require the payment of the fee set forth in §1.17(j) with any petition for the institution of public use proceedings.

Section 1.304, paragraph (a), is amended to provide for extension of the time period for filing an appeal or civil action to be subject to the provisions of §1.136 and refer to the Court of Appeals for the Federal Circuit rather than to the Court of Customs and Patent Appeals.

Section 1.311 is amended to designate the present section as paragraph (a) and revise it in several ways. Paragraph (a) indicates that the notice of allowance will be sent to the correspondence address as indicated under §1.33. The issue fee (§1.18) is indicated as being due 3 months from the date of mailing of the notice of allowance. Paragraph 1.311(b) permits an authorization to be filed either before or after the mailing of the notice of allowance to charge the issue fee to a deposit account.

Section 1.312 is amended to divide the section into two paragraphs and require a petition and payment of the fee under §1.17(i) for any amendment filed after payment of the issue fee.

Section 1.313 is amended to provide in paragraph (a) clear basis for the Office withdrawing applications from issue on its own initiative or upon petition by applicant accompanied by the petition fee set forth in §1.17(i). Any accompanying amendment must comply with the requirements of §1.312. Paragraph (b) clarifies when an application will be withdrawn from issue after assignment of the issue date and patent number.

Section 1.314 is amended to revise the wording to eliminate reference to a portion of the issue fee and adds reference to the possibility that an application in which the issue fee was paid can be withdrawn from issue under§1.313 or the issuance thereof deferred pursuant to a petition by the applicant and the payment of the petition fee under §1.17(i).

Section 1.321 is amended to include references in both paragraphs (a) and (b) to the statutory disclaimer fee in §1.20(d) and delete the reference to §1.21.

Section 1.324 is amended to include reference to the fee in §1.20(b) and change the word "application" to "petition".

Section 1.331, paragraph (a), is amended to add a new sentence which gives the citation of the fee for recording assignments and to indicate that instruments recorded on the Government register under Part 7 of Title 37, Code of Federal Regulations, do not require payment of such fee.

Section 1.332 is amended to refer to the fee in §1.21 (h) for recording an assignment.

Section 1.334 is amended to divide the rule into three paragraphs and also require an address of the assignee so that correspondence can be directed to the assignee if required. New paragraph (c) provides for filing a petition and the fee set in §1.17(i) seeking to have the patent issue to the assignee where such assignment has not been recorded at the time the issue fee is paid.

Section 1.341, paragraph (h), is amended to refer to the fee set forth in §1.21(a)(2) for registration of an attorney or agent.

Section 1.347 is amended to add a sentence referring to the fee set forth in §1.21(a)(3) for reinstatement of an attorney or agent.

Section 1.445 is amended to increase the PCT transmittal fee and search fee to a level needed to cover the cost of performing the required functions. Paragraph 1.445(a)(2) is also amended to provide, in effect, for a reduction in the international search fee due to the United States Patent and Trademark Office as an International Searching Authority where a corresponding United States national application with fee has been filed. In addition, paragraph 1.445(a)(4) is amended to credit the national fee required under §1.16(a)–(d) where an international search fee has been paid on the corresponding international application to the United States as an International Searching Authority. Where the amount of the credit is in excess of that required for the national fee a request for a refund of the excess under §1.446(b) may be filed at the time of paying the national fee. The supplemental search fee for inventions in addition to the first, where lack of unity of invention has been found, is reduced since the present fee is more than is required to cover the costs. The national fee amount is the same as the national application filing fees in §1.16(a)–(d).

Section 1.446(b) is revised to permit a refund of a portion of the search fee to the extent set forth in § 1.445(a)(4), if such refund is requested at the time of paying the national fee.

Section 1.451 is amended in paragraph (b) to revise the citation of the fees for a certified copy.

Section 1.510 is amended to cite the section which sets forth the fee for requesting reexamination. There is no change in the amount of this fee.

* * * * *

Alternative B—Rule Changes Under H.R. 6260

The following sections will become effective on Oct. 1, 1982, upon enactment of H.R. 6260 as a Public Law prior to that date:

Section 1.16 in Alternative B establishes in the regulations those statutory fees which would be charged by the Commissioner for filing patent applications under H.R. 6260. Section 1.16 also includes additional filing fees set in 35 U.S.C. 41(a)(1) to cover the cost of examining complexities presented by certain applications, e.g., applications containing more than a specified number of claims and any application containing a multiple dependent claim. Section 1.16 also provides that fees will be charged when the number of claims is increased above the specified number or when a multiple dependent claim is first presented, whether on filing or at a later point in processing.

Under 35 U.S.C. 41(a) as it would be amended by H.R. 6260, the filing fee for an original patent, except in design or plant cases, is $300. In addition, on filing or on presentation at any other time, $30 is due for each claim in independent form which is in excess of three, $10 is due for each claim (whether independent or dependent) which is in excess of twenty, and $100 is due for each application containing a multiple dependent claim. The latter fee is a one-time charge per application due the first time a multiple dependent claim is presented for examination. For the purpose of computing fees, a multiple dependent claim as referred to in §112 of Title 35, United States Code, or any claim depending therefrom, is considered as separate dependent claims in accordance with the number of claims to which reference is made.

The fees in §1.16 are reduced by 50 per centum for applications filed by small entities, i.e., independent inventors, nonprofit organizations and small business concerns, in accordance with H.R. 6260. Therefore, two fees are listed under each paragraph.

New§1.16 relates to application filing fees. Paragraph (a) sets a basic filing fee of $300 which will be required in all original patent applications. The term "original" as used in the regulations means "non-reissue". An "original" application can be a first filing, a division, a contin-

uation, or a continuation-in-part application. Paragraph 1.16(b) provides for an additional fee of $30 for each independent claim in excess of 3 in an original application. New paragraph 1.16(c) provides for an additional fee of $10 for each claim in excess of 20, whether independent or dependent. A multiple dependent claim is considered to be that number of claims to which direct reference is made. Also, any claim which refers to a multiple dependent claim is considered for fee calculation purposes to be the number of claims to which direct reference is made in the multiple dependent claim. Paragraph 1.16(d) provides for a new fee of $100 in each application which contains one or more multiple dependent claims. The note following paragraph 1.16(d) is intended to clearly indicate that the applicant, attorney, or agent may pay any additional fees required under paragraphs (b), (c) and (d) of §1.16, or cancel such claims without payment of such additional fees, either at the time of filing or by the time a response is due to any notice of fee deficiency mailed by the Office. If the fees are not paid or the claims cancelled by the end of the period set for response to the notice of fee deficiency, the application will be held abandoned. New paragraph 1.16(e) establishes the amount of the surcharge for filing the basic filing fee or oath or declaration on a date later than the filing date of the application. This fee is being established at this time, but will only be made effective when the statutory authority for the late filing of the fee or the oath or declaration becomes effective under 35 U.S.C. 111, as it would be amended by H.R. 6260. New paragraph 1.16(f) provides for a filing fee of $125.00 for a design application.

Paragraphs 1.16(g) and (h) incorporate into the regulations the filing fees for plant and reissue applications.

Paragraphs 1.16(i) and (j) set forth the additional claim fees required in reissue applications based on claims in excess of those in the original patent.

New §1.17 relates to patent application processing fees which are normally due during the time a patent application is pending. New paragraphs (a), (b), (c) and (d) provide for the payment of an extension fee for obtaining an automatic extension of time upon filing a petition as provided for in §1.136(a). The extension fee can be paid during the period for which an extension of time to respond is desired, or after the original period for response has expired, provided that any maximum statutory period which may apply has not expired. The fees set forth in §1.17 are the total fees required under §1.136(a) for the periods indicated and any extension fee previously paid to extend a particular period is credited toward the total extension fee required. Paragraph (e) sets forth the fee for filing a notice of appeal to the Board of Appeals. Paragraph (f) sets forth the fee for filing an appeal brief for appellant. Paragraph (g) provides for a new fee for requesting an oral hearing before the Board of Appeals. Paragraphs (h) and (i) set forth fees which will be required with petitions to the Commissioner under those sections of the regulations which specifically indicate that such petition fees are required. The amount of the fees are set at two levels based on the degree of complexity of the petitions in order to recover the estimated average cost to the Office of processing the petitions. Paragraph (j) provides for a fee to be paid with any petition for institution of a public use proceeding to cover the estimated average cost of such a proceeding. Paragraph (k) sets forth a new fee for processing an application filed with a non-English language specification. The fee will cover the additional processing costs involved in such applications. New paragraph (l) incorporates into the regulations the fee which will be charged for filing a petition to revive or to accept late payment of the issue fee where the delay was unavoidable. New paragraph (m) incorporates into the regulations the fee which will be established in 35 U.S.C. 41(a)7, as amended by H.R. 6260, to be charged for a petition for the revival of an unintentionally abandoned application for patent or for the unintentionally delayed payment of an issue fee.

Since paragraphs 1.17(h), (i), (j) and (k) are established under the authority given the Commissioner under 35 U.S.C. 41(d) as it would be amended by H.R. 6260, only one level of fee is set. H.R. 6260 only provides for the reduction of fees charged to small entities of those fees established in 35 U.S.C. 41(a) and (b).

New §1.18 sets the amount of the issue fees specified by H.R. 6260. New paragraph (a) establishes an issue fee of $500.00 for all original and reissue patents except for designs and plants. New paragraph (b) sets the amount of the issue fee for a design patent. New paragraph (c) sets forth the issue fee for a plant patent. All fees in §1.18 will be reduced by 50 per centum for small entities.

New §1.20 sets fees for various post-issuance functions performed by the Office. New paragraph (a) sets forth a fee for providing a certificate of correction of an applicant's mistake. New paragraph (b) sets a fee to accompany a petition to correct inventorship in a patent under §1.324. New paragraph (c) transfers the $1,500.00 fee for requesting reexamination from present §1.21(x) to this new section. New paragraph (d) provides for a fee for filing a disclaimer under §1.321. Maintenance fees required by Public Law 96-517 and which would be set in H.R. 6260 are placed in this section. Specific maintenance fees, which are required by Public Law 96-517, for those patents resulting from applications filed on and after Dec. 12, 1980 and up to the date of enactment of H.R. 6260 are being established at this time in paragraphs 1.20(e)–(g). New paragraphs 1.20(h)–(j) incorporate into the regulations the maintenance fees which would be provided in 35 U.S.C. 41(b) by H.R. 6260. The fees in paragraphs 1.20(a)–(c) are only set at one level because they are established under 35 U.S.C. 41(d). The fees in paragraphs 1.20(e)–(g) are only set at one level because they are established under Public Law 96-517 and are not subject to reduction for small entities. The details implementing the payment of maintenance fees are not being established at this time.

Section 1.66 is amended to provide for the use of an apostille of a foreign official to attest to oaths or affirmations made in foreign countries in accordance with 35 U.S.C. 115 and 261, as amended by H.R. 6260.

Section 1.137, as amended, designates the existing section as part of paragraph (a), adds a reference to the new fee under §1.17(1) for a petition for revival where the delay which resulted in abandonment was unavoidable, indicates that the petition must be promptly filed, and states when the showing that the delay was unavoidable must be verified. New paragraph 1.137(b) provides for filing a statement and a fee under §1.17(m) for revival of an application which was unintentionally abandoned, and also indicates when such petitions can be filed. Paragraph (c) requires that any petition for revival under paragraph (a) of §1.137 be promptly filed and that a terminal disclaimer, equivalent to the period of abandonment of the application, be filed with any petition under paragraph (a) filed more than six months after the date of abandonment.

Section 1.155 is amended to refer in paragraph (a) to §1.18(b) which sets forth the issue fee for a design application. Paragraph 1.155(b), as amended, includes a reference to the fee for delayed payment of the issue fee set forth in §1.71(1) where the delay in payment was unavoidable, indicates that the petition must be promptly filed, and states when showings that the delay was unavoidable must be verified. New paragraph 1.155(c) provides for acceptance of the late payment of the issue fee where the delay was unintentional upon petition and payment of the fee set forth in §1.17(m). New paragraph 1.155(c) also indicates when such petitions can be filed. Paragraph 1.155(d) is added to require a terminal disclaimer equivalent to the period of abandonment of the application where petition under paragraph (b) of §1.155 is not filed within six months of the date of abandonment.

Section 1.316 is amended to implement the statutory provisions of 35 U.S.C 41(a) with regard to petition fees for revival of applications abandoned for failure to pay the issue fee. Paragraph (b) is amended to provide for

petitions for revival with the fee in §1.17(l) where the delay in payment was unavoidable, to indicate that the petition must be promptly filed, and to state when showings that the delay was unavoidable must be verified. Paragraph (c) is added to provide for petitions for revival with the fee in §1.17(m) where the delay was unintentional. New paragraph (c) also indicates when such petitions can be filed. Paragraph (d) is added to require a terminal disclaimer equivalent to the period of abandonment of the application where a petition under paragraph (b) of §1.316 is not filed within six months of the date of abandonment.

Section 1.317 is amended to implement the statutory provisions of 35 U.S.C. 41(a) with regard to petition fees for patents lapsed for failure to pay the remaining balance of the issue fee. Paragraph (a) is amended to show that it applies only to patents in which the issue fee was paid prior to Oct. 1, 1982. Issue fees paid on or after that date will be in accordance with §1.18. Paragraph (b) is amended to provide for petitions with the fee in §1.17(l) where the delay in payment was unavoidable, to indicate that the petition must be promptly filed, and to state when showings that the delay was unavoidable must be verified. Paragraph (c) is added to provide for petitions with the fee in §1.17 (m) where the delay was unintentional. New paragraph (c) also indicates when such petitions can be filed. Paragraph (d) is added to require a terminal disclaimer equivalent to the period of lapse of the patent where a petition under paragraph (b) of §1.317 is not filed within six months of the date of lapse.

RESPONSE TO COMMENTS ON THE RULES

Specific comments were received on a number of the sections. All of the comments, including the written comments and the oral testimony, were considered in adopting the changes set forth herein.

Written comments were received from three patent law groups and eleven individuals. The three patent law groups were (1) the American Patent Law Association whose membership includes several thousand lawyers involved in the practice of law before the U.S. Patent and Trademark Office; (2) the Patent, Trademark and Copyright Section of the Virginia State Bar; and (3) the Patent, Trademark and Copyright Law Section of The Bar Association of the District of Columbia.

Oral comments were presented at the hearing on behalf of two patent law groups and by 3 individuals on their own behalf.

These comments appear below along with responses thereto.

Comments received relating to §§1.9, 1.27 and 1.28 and the forms of Part 3 are not discussed in substance in this rule change since additional time for submitting written comments is provided until Aug. 13, 1982. All comments presented to these rules will be discussed in a later rule promulgation.

Comment:

One person argued that it is unreasonable to require fees to lengthen a shortened statutory period.

Reply:

A shortened statutory time is provided for by statute. The shortened period helps reduce patent pendency time and speed the disclosure of technology and information about patent rights. Many applicants can reply within the present three month shortened period which has been in effect for over fifteen years. The fee for extending the time provides a positive method for applicants to obtain an extension of time while still expediting the prosecution of their applications.

Comment:

Another person commented that H.R. 6260 should be rejected in that the fee levels are too high.

Reply:

The consideration of the merits of H.R. 6260 is not before the Office in this rule change.

Comment:

Three patent bar groups and two individuals presented comments relating to the effect of the new extension of time fees in §1.17 and the effect thereof on the current practice of granting an automatic one-month extension of time if a timely first response to a final rejection is filed by the applicant.

Reply:

The Office plans to terminate the automatic one-month extension of time practice on Oct. 1, 1982. It is felt that the extensions of time which are readily available under §§1.17 and 1.136 will meet the needs of applicants. The amount of the fees required to obtain an extension will be the same for periods of response before and after final rejection.

Comment:

One suggestion was made to permit the filing of an appeal without the appeal fee where the Office has not acted on a timely response after final rejection by applicant.

Reply:

Such a procedure is not possible under the provisions of H.R. 6260 since it calls for the appeal fee "On filing an appeal" in §41(a)6.

Comment:

Two comments were received requesting that the rules be changed to make the due date for paying the fee for an oral hearing on appeal after the examiner's answer on appeal.

Reply:

A change in the rules has been made to provide that the fee for an oral hearing is due no later than one month after the date of mailing of the examiner's answer.

Comment:

Two comments were received requesting that no charge for revival of an abandoned application be made where the abandonment resulted from the non-receipt of an Office action by the applicant.

Reply:

It is present Office practice to remail any Office action which is not received at applicant's correspondence address and start anew the response period. This procedure will continue in the future under the revised rules.

Comment:

Three patent bar groups and two individuals indicated that the proposed deletion of the refund provisions due to PCT search reports in §1.26(b) and §1.446(b) would make the cost of filing under the Patent Cooperation Treaty prohibitively high and does not recognize the benefit of an earlier search on a corresponding application.

Reply:

In view of these comments, proposed §1.445(a) (2) and (4) and §1.446(b) have been amended to provide a credit of $250 where there is a corresponding application.

Comment:

One individual requested that the multiple dependent claim practice set forth in §1.75(c) be changed to permit one multiple dependent claim to refer to another multiple dependent claim as permitted under European practice.

Reply:

This suggestion cannot be adopted since it is contrary to 35 U.S.C. 112 and cannot therefore be changed by rule.

Comment:

One suggestion was made to change "official" to "Office" in §1.135(b).

Reply:

The suggestion has been adopted.

Comment:

One suggestion was made to allow refund of the oral hearing fee if an oral hearing is not held.

Reply:

This suggestion was not adopted since such refund is not appropriate in view of the fact that the fee is stated to be "for requesting an oral hearing" and not the actual conduct thereof.

Comment:

Three patent bar groups raised the question as to whether an applicant would be permitted to revive an unintentionally abandoned application under §1.137(b) after having been unsuccessful in the unavoidable approach under §1.137(a) and suggested that this be made clear when the proposed rules are promulgated.

Reply:

Yes, an applicant under certain conditions could use § 1.137(b) after having been unsuccessful in the unavoidable approach under §1.137(a).

Comment:

Several comments related to the possibility of reviving applications unintentionally abandoned up to 15 years ago.

Reply:

In view of the comments received, §1.137(b) is being implemented to provide only for the revival of applications which were unintentionally abandoned for a reasonable but limited period of time. This should create no substantial problems in regard to intervening rights situations. It would permit some greater flexibility than that originally proposed but should have no significant effect on the current case backlog, pendency or number of interferences pending.

Comment:

One comment was received pointing out that the availability of an "unintentional abandonment" revival under §1.137(b) should not result in stricter holdings in "unavoidable abandonment" revival petitions under § 1.137(a).

Reply:

The Office plans to continue to use the current criteria used to decide petitions to revive applications unavoidably abandoned.

Comment:

One written comment questioned whether the Commissioner has statutory authority to revive unintentionally abandoned applications.

Reply:

If Congress did not intend the Commissioner to have such authority there would have been no reason to establish fees in §41(a)7 in H.R. 6260. The legislative history of H.R. 6260, House Report No. 97–542 (Committee on the Judiciary), also makes the Congressional intent clear. The provisions in H.R. 6260 relating to unintentional abandonment are substantive in addition to setting the fee.

Comment:

One letter questioned what is intended by the statement in §1.137(b) that the Commissioner may require additional information where there is a question whether the abandonment was unintentional.

Reply:

Additional information would be required only where there is an indication that the abandonment was intentional, for example, where an express abandonment has been filed. The record should be clear how such an express abandonment was unintentional if the petition is to be granted.

Comment:

One comment raised the question as to whether in a petition to revive on grounds that the delay was unavoidable under §1.137(a), it would be sufficient that a registered attorney's statement be submitted which merely recites facts as related to him or her by another.

Reply:

Statements must be made, where possible, by the person having direct personal knowledge of the facts. No change in the "showing" required or the persons making them is intended in such petitions. The rule merely clarifies that a statement by a registered attorney or agent need not be in the form of an oath or declaration.

Comment:

One comment suggested that §1.317 be changed to provide for the situation where there was a lapse in a patent due to the unintentional delay in paying a balance of issue fee due.

Reply:

Section 1.317 has now been changed to provide for this lapse situation.

Comment:

Three patent bar groups and one individual indicated that a full credit of the amount equal to the international search fee be made where both a U.S. national and international seach are made by the United States Patent and Trademark Office.

Reply:

While a complete credit is not considered proper in view of additional processing work (including searching) required in the second application, a credit of $250 has been provided in revising §1.445(a) (2) and (4).

Comment:

One person commented that the term "patent" should be inserted after "abandoned" in §1.12(b).

Reply:

The suggestion has been adopted.

DISCUSSION OF SIGNIFICANT DIFFERENCES BETWEEN PROPOSED AND FINAL RULES

A number of other changes which have been made as a result of the comments received and further review of the proposed rulemaking are identified below.

Implementation of the changes to §1.9, new §§1.27 and 1.28, and the deletion of Part 3 are being deferred for further comments by Aug. 13, 1982. See the discussion below.

Subparagraph (a) (5) of §1.19 has been changed from that proposed by referring to subparagraphs (1) through (4) rather than (3) and (4) in order to clarify that copies of patents cannot be ordered at the rate set in subparagraph (a) (5). Instead, copies of patents must be ordered under paragraphs (a) (1) and (2) of §1.19.

Section 1.24 has been changed from that proposed to provide for the sale of 40-cent coupons. Coupons in this denomination may be useful in view of the charge of forty cents for a printed copy of a registered mark in §2.6(m) of Alternative A of the trademark rules.

Sections 1.137, 1.155 and 1.316 have been changed from that proposed in Alternative B to further specify the conditions under which unintentionally abandoned applications can be revived.

Sections 1.192 and 1.194 have been changed from that proposed so as to allow a request for an oral hearing and the payment of the required fee therefor to be made one month after the date of the examiner's answer. Previously, appellant was required to indicate a desire for an oral hearing at the time of filing the brief. The sections will now permit appellant to consider the examiner's answer before deciding whether to request an oral hearing and pay the required fee.

Section 1.317 has been changed in Alternative B to provide for the situation where there was a lapse in a patent due to the unintentional delay in paying a balance of issue fee due.

Section 1.445(a) (2) and (4) have been changed from that proposed to provide for a reduction in the international search fee where there has been a corresponding United States national application and a credit to the na-

tional fee where an international search fee has been paid in a corresponding international application and the international search has been made by the United States Patent and Trademark Office.

Section 1.446(b) has been changed from that proposed to permit a refund of a portion of the search fee to the extent set forth in §1.445(a) (4), if such refund is requested at the time of paying the national fee.

IMPLEMENTATION OF PATENT FEE REVISION

The effective date of the patent fee revisions contained in this rulemaking is Oct. 1, 1982.

• • •

The changes which will become effective on Oct. 1, 1982, upon enactment of H.R. 6260 as a Public Law prior to Oct. 1, 1982, are (1) the rule changes common to Public Law 96–517 and H.R. 6260, and (2) the rule changes under H.R. 6260, which appear in Alternative B. The rule changes common to Public Law 96–517 and H.R. 6260 will become effective on Oct. 1, 1982, whether or not H.R. 6260 is enacted as a Public Law prior to Oct. 1, 1982.

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Upon enactment of H.R. 6260 as a Public Law prior to Oct. 1, 1982, the rule changes in Alternative B will become effective on Oct. 1, 1982, in which case the rule changes in Alternative A will not become effective on Oct. 1, 1982.

Any fee which is due and payable on or after Oct. 1, 1982, must be paid in the amount and in accordance with the procedures contained in this rulemaking. For purposes of determining the amount of the fee to be paid, the date of mailing indicated on a proper Certificate of Mailing under §1.8 will be considered to be the date of receipt in the Office. In order to ensure clarity in the implementation a discussion of the implementation of specific sections is set forth below:

IMPLEMENTATION OF SPECIFIC SECTIONS

The various sections will be implemented in the manner set forth below:

§1.16 National application filing fees.

Any national patent application filing fees paid on or after Oct. 1, 1982, must be paid in the amounts set forth in this section. Any additional fees which become due under §1.16 in pending applications on or after Oct. 1, 1982, or which have not been paid prior to Oct. 1, 1982, must be paid in the amounts set forth in this section even though the application was filed prior to Oct. 1, 1982. For example, if an application filed prior to Oct. 1, 1982, is amended on or after Oct. 1, 1982, to include a multiple dependent claim for the first time, the fee set forth in §1.16(d) must be paid.

The surcharge in §1.16(e) of Alternative B is being established at this time, but will only be made effective when the statutory authority for the late filing of the fee or the oath or declaration becomes effective under 35 U.S.C. 111, as it would be amended by H.R. 6260. The statutory authority for the late filing of the fee or the oath or declaration becomes effective six months after enactment of H.R. 6260 as a Public Law.

§1.17 Patent application processing fees.

Any patent application processing fees paid on or after Oct. 1, 1982, must be paid in the amounts set forth in this section.

The extension fees which must accompany a petition for an extension of time become effective on Oct. 1, 1982, and apply to any application for which the period for responding, i.e., taking action, expires on Oct. 1, 1982, or thereafter. If a response or action by the applicant was due before Oct. 1, 1982, and was not filed timely or an extension of time until Oct. 1, 1982, or thereafter, was not obtained, then §1.136(a) cannot be used to obtain an extension. *Any response or action required before Oct. 1, 1982, cannot have its time extended by using §1.136(a).* If one or more previous extensions have been granted prior to Oct. 1, 1982, extending the time for taking action until Oct. 1, 1982, or thereafter, the fees which are due for additional extensions under §1.136(a) will be as set forth in §1.17(a)–(d) under either Alternative A or B.

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The previous practice of extending the shortened statutory period an additional month upon the filing of a timely first response to a final rejection is being discontinued effective with any first response to a final rejection filed on or after Oct. 1, 1982. Applicants can obtain additional time for response after that date by paying the appropriate fee for the same. An object of the previous practice, as expressed in §714.13 of the Manual of Patent Examining Procedure, was to obviate the necessity for appeal or filing a continuing application merely to gain time to consider the examiner's position in reply to a response timely filed after final rejection. Under §1.136(a) the object of the previous practice can be achieved without continuing the previous practice. Thus, under §1.136(a) an applicant can file a timely first response to a final rejection within the initial period without having to file an appeal or a continuing application if the examiner's response is not received prior to the expiration of the initial period for response. If the timely first response places the application in condition for allowance no additional response and no extension fee from applicant is required. If the examiner's advisory action indicates the timely first response did not place the application in condition for allowance the applicant may then consider the examiner's position to determine whether further prosecution is desirable. If further prosecution is not desired the application can be abandoned without further response or expense. If further prosecution is desired, the applicant can petition and pay the necessary fee to extend the time to the extent appropriate up to the maximum permitted by statute. The availability of this flexibility under §1.136(a) eliminates the necessity for the previous practice. Further, under H.R. 6260 extensions of time would be granted in most instances by virtue of the payment of fees rather than without fees as in the previous practice. The elimination of the previous practice after final rejection is thus consistent with the letter and spirit of H.R. 6260.

After an applicant has petitioned and paid the extension fees of $550 for response within the fourth month pursuant to §1.136(a), any further extensions which are permitted under the statute must be obtained under §1.136(b).

A petition for extension of time under §1.136(a) may incorporate by reference a previously filed response without including an additional copy of the response in circumstances where the response was received late and the petition is filed to extend the time so that the response will be considered timely.

The appeal fees set forth in §1.17(e)–(g) are due for notices of appeal or briefs filed, or requests for oral hearings filed, on or after Oct. 1, 1982. If more than one appeal occurs in an application, the fees are due for each notice of appeal, each brief, and each request filed for an oral hearing as long as a decision on the merits by the Board of Appeals resulted from the first notice of appeal, brief, and request for an oral hearing. If the examiner reopens prosecution in the application after appeal and prior to the decision by the Board of Appeals then the fee for the notice of appeal, brief, and request for an oral hearing will apply to a later appeal which does result in a decision by the Board of Appeals. No refund of any appeal fees is permitted since such are due on filing or on requesting an oral hearing. No fee is required for a reply brief.

The fees for petitions set forth in §1.17(h)–(j) and (l) apply to any such petition filed on or after Oct. 1, 1982. The fee set forth in §1.17(m) of Alternative B would apply, with enactment of H.R. 6260 prior to Oct. 1, 1982, to petitions (1) for revival of an unintentionally abandoned application or (2) for the unintentionally delayed payment of the fee for issuing a patent. Section 1.137(b) of Alternative B would apply to applications unintentionally abandoned by failure to prosecute, e.g., failure

to respond to an Office action. Sections 1.155(c) and 1.316(c) of Alternative B would apply to applications in which the payment of the fee for issuing a patent is unintentionally delayed These sections would be implemented, with enactment of H.R. 6260 prior to Oct. 1, 1982, by making them effective as to any applications which would be covered by the literal language of the sections. In addition, and for a transition period between Oct. 1, 1982, and Dec. 31, 1982, a petition to revive an unintentionally abandoned application would be granted if (i) the application received a decision on a petition to revive the application on or after Oct. 1, 1981, and before July 30, 1982, or (ii) a petition was filed or renewed on or after Oct. 1, 1981, and before July 30, 1982, provided in the case of both (i) and (ii) that a petition to revive was filed within one year of the date of abandonment. The dates in question were chosen so as to permit this remedial provision to be given as wide an application as possible to benefit applicants whose applications have previously been unintentionally abandoned, but who could not meet the previous requirements for a showing that the delay resulting in the abandonment was unavoidable. The dates were also chosen to prevent an applicant whose application has been abandoned for an unduly long period from attempting to take advantage of this new provision, possibly to the detriment of individuals or companies who had begun to make, use, or sell the subject matter of the application after the date of abandonment of the application. By using these dates the possibility of reviving the application of an applicant who has, in effect, abandoned the invention under 35 U.S.C. 102(c) is minimized. Implementing these sections in the manner set forth would be appropriate and proper in view of the legislative history of H.R. 6260, contained in House Report No. 97–542 (Committee on the Judiciary), which indicates that the Commissioner can establish time limits within which petitions to revive or to accept late payment of issue fees can be filed. Thus, it is entirely proper to limit such petitions in the manner set forth in order to prevent abuses from occurring. To ensure that abuses do not occur, §§1.137(b), 1.155(c), 1.316(c), and 1.317(c) specifically indicate that waivers of the time periods involved will not be considered via petitions under §1.183.

The fee set forth in §1.17(k) is required for any application filed on or after Oct. 1, 1982, with a specification in a non-English language.

§1.18 Patent issue fees.

Any patent issue fee paid on or after Oct. 1, 1982, must be paid in the amounts set forth in this section even if the notice of allowance was mailed prior to Oct. 1, 1982, and indicates different amounts due. If the issue fee is paid prior to Oct. 1, 1982, any balance of issue fee due must be paid in accordance with §1.317.

§1.19 Document supply fees.

The document supply fees set forth in this section will apply to all orders and requests received by the Patent and Trademark Office on or after Oct. 1, 1982.

§1.20 Post-issuance fees.

The post-issuance fees set forth in §1.20(a)–(d) apply to any petitions, requests, or actions filed on or after Oct. 1, 1982. The amounts of the maintenance fees are included in §1.20.

Maintenance fees will be required for any patent actually applied for on or after Dec. 12, 1980, whether or not the patent is entitled to the benefit of an earlier filing date under 35 U.S.C. 120 or a right of priority under 35 U.S.C. 119. For reissue patents, the controlling date would be the filing date of the original patent. For example, maintenance fees would only be required where the application for the original patent was filed on or after Dec. 12, 1980. As to patents resulting from international applications filed under the Patent Cooperation Treaty, maintenance fees will be required on all patents resulting from international applications having PCT filing dates on or after Dec. 12, 1980.

The details implementing payment of the maintenance fees are not being established at this time since such fees will not be due for some time and additional consideration of the problems thereof is required.

§1.21 Miscellaneous fees and charges.

The miscellaneous fees and charges set forth in this section will apply to all orders and requests received by the Patent and Trademark Office on or after Oct. 1, 1982.

§1.445 International application filing and processing fees.

Any international application filing and processing fees paid on or after Oct. 1, 1982, must be paid in the amounts set forth in this section.

Implementation Of Certain Sections Deferred For Further Comments

In view of the comments and the recommendations received at the hearing on July 9, 1982, the period for written comments on §1.9(c), (d), (e), and (f), and on §§ 1.27 and 1.28, has been extended until Aug. 13, 1982 (see 47 FR 32458, July 27, 1982). Comments received at the hearing on July 9, 1982, expressed the view that there is no necessity to publish final rules on §1.9(c), (d), (e), and (f), and on §§1.27 and 1.28, by August 2, 1982, and that further time for consideration and comment was necessary. Persons commenting stated a belief that the pressure of time does not apply to §§1.27 and 1.28 as it does apply to the fee rulemaking. Accordingly, the period for written comments on these sections is extended until Aug. 13, 1982. After receiving written comments by Aug. 13, 1982, the changes to §1.9 and proposed §§1.27 and 1.28 will be adopted as final rules with such modifications as are found to be appropriate after review of the comments. These rule changes, with any appropriate modifications thereof, must become effective on Oct. 1, 1982, with enactment of H.R. 6260 prior to Oct. 1, 1982. Accordingly, adoption of the changes to §1.9 and new §§1.27 and 1.28 is being deferred at this time to permit additional written comments by Aug. 13, 1982. However, these rule changes will be adopted, with any appropriate modifications, as soon as possible after receipt of the additional written comments. No additional proposal will be published and no additional hearing will be held prior to adoption of final rules on the changes to §1.9 and on new §§1.27 and 1.28.

As a result of additional comments presented during the hearing on the proposed trademark fees, the period for written comments on the deletion of Part 3 was also extended until Aug. 13, 1982, to provide an additional opportunity for interested persons to comment on this proposed change. Since it is not essential that this deletion be published by Aug. 2, 1982, it is appropriate to extend the period for comments. No additional proposal will be published and no additional hearing will be held prior to a decision on whether or not to delete Part 3 as proposed.

SECTION II—REVISION OF TRADEMARK FEES

Background

A notice of proposed rulemaking was published in the *Federal Register* on June 28, 1982, at 47 FR 28063–28065 and in the *Official Gazette* on June 29, 1982, at 1019 TMOG 110–119. An oral hearing was held on July 9, 1982. Three written letters and statements were submitted. Three persons testified at the oral hearing. Full consideration has been given to all of the letters, statements, and testimony.

Objectives of Rule Changes

These amendments establish fees for the filing and processing of an application for the registration of a trademark or other mark, and for providing all other services and materials relating to trademarks and other marks.

Public Law 96–517

Public Law 96–517 authorizes the Commissioner to establish fees for the filing and processing of an applica-

tion for the registration of a trademark or other mark, and for providing all other services and materials relating to trademarks and other marks. Public Law 96–517 requires that by Oct. 1, 1982, fees for the filing and processing of an application for the registration of a trademark or other mark be set to recover in the aggregate 50 percent of the estimated average cost to the Office of such processing. Also by Oct. 1, 1982, fees for providing all other services and materials relating to trademarks and other marks are to be set to recover the estimated average cost to the Office of performing the service or furnishing the material.

H.R. 6260

On June 8, 1982, the House of Representatives passed H.R. 6260. This bill would amend the fee provisions to be implemented on Oct. 1, 1982. H.R. 6260 would repeal the provisions in Public Law 96–517 requiring that filing and processing fees be set to recover in the aggregate 50 percent of the estimated average cost of such processing to the Office, and that fees for providing all other services and materials relating to trademarks and other marks be set to recover the estimated average cost to the Office of performing the service or furnishing the material. In passing H.R. 6260, the House of Representatives recommended a fee schedule to the Commissioner for fiscal year 1983. The fees set in Alternative B adopt the House recommendation.

This rule change, therefore, is also designed in the alternative to implement the fee provisions as they would be amended by H.R. 6260. The rule change contains changes which are common to Public Law 96–517 and H.R. 6260, as well as alternative rule changes which are specific to Public Law 96–517 (Alternative A) and to H.R. 6260 (Alternative B).

DISCUSSION OF SIGNIFICANT CHANGES

This rulemaking places into the appropriate sections of Title 37, Code of Federal Regulations, the various fees which are due on filing, during the pendency of a trademark application, or during the life of a registration.

Rule changes for implementing provisions of Public Law 96–517 or H.R. 6260 other than the fee provisions have not been included. Rule changes for implementing provisions other than the fee provisions will be published in a later rulemaking proposal.

DISCUSSION OF SPECIFIC SECTIONS CHANGED

The sections changed are grouped in this document under three different categories. Those changes which are common to Public Law 96–517 and H.R. 6260 appear first and are numbered 72–76. The change which relates only to Public Law 96–517 appears as Alternative A and is numbered 77. The change which is dependent upon enactment of H.R. 6260 appears as Alternative B and is numbered 78. The changes common to Public Law 96–517 and H.R. 6260 will become effective on Oct. 1, 1982, whether or not H.R. 6260 is enacted as a Public Law. * * * * * Upon enactment of H.R. 6260 as a Public Law prior to Oct. 1, 1982, Alternative B will become effective on Oct. 1, 1982, in which case Alternative A will not become effective.

The specific rules for which changes are made are §§2.6, 2.85, 2.101, 2.146, 2.162 and 2.167.

Rule Changes Common to Public Law 96–517 and H.R. 6260

Section 2.85, paragraph (e), is amended to delete reference to late filed fees for oppositions and affidavits. The manner in which such fees shall be handled is described in the pertinent sections for affidavits and oppositions.

Section 2.101, paragraph (c), is amended to delete the reference to a service charge which will no longer be charged for late-filed fees for oppositions.

Section 2.146, paragraph (b), is amended to add a fee for filing a petition to the Commissioner. Paragraph (f) of this section which indicates that no fee is required is deleted.

Section 2.162, paragraph (d), is amended to remove the reference to a service charge for late-filed fees on §8 affidavits.

Section 2.167, paragraph (g), is added to establish procedures relating to the fee for affidavits under §15, 15 U.S.C. 1065, and to state the Office's action when no fee or an insufficient fee is filed.

* * * * *

Alternative B—Rule Change Only Under H.R. 6260

Section 2.6 is revised to establish the fees recommended by the House of Representatives under H.R. 6260 for filing and processing applications for the registration of trademarks or other marks and for providing services and materials relating to trademarks or other marks. The $10 fee recommended by the House for certified copies appears in paragraphs (n) and (o) as a fee of $6.50 for a copy of a registered mark showing title and/or status and a fee of $3.50 for certification.

RESPONSE TO COMMENTS ON THE RULES

Specific comments were received on several of the sections. All of the comments included in the written submissions and the oral testimony were considered in adopting the changes set forth herein.

Written comments were received from three individuals. Oral comments were presented at the hearing on behalf of a patent and trademark law group, the American Patent Law Association, and an organization of trademark owners and lawyers, the United States Trademark Association. One individual spoke on behalf of a law firm and expanded upon the points raised in his previously submitted written comments.

These comments appear below along with responses thereto, where appropriate.

Comment: The representative of the trademark association spoke favorably about the proposal presented. The organization opposed 100% recovery of trademark costs from user fees. It was felt that such an approach reflected a misconception that trademarks benefit only their owners and not consumers and the economy as a whole. The speaker solicited the assistance of the Patent and Trademark Office in altering this viewpoint.

Comment: The representative of the bar group questioned the fairness of the Office in establishing the fees under Alternative B. It appeared that the Office had accepted the USTA proposals only where they were higher. In all cases where the USTA recommendations were lower than those proposed, the difference was split. The filing fee was singled out as the most unfair fee.

Reply: In Alternative B, the rules adopt the fee levels recommended by the House Committee on the Judiciary in House Report No. 97–542. The Report recognizes that the Office needs to recover a certain amount of fee income over the next three years. The application filing fee is expected to furnish more than 60% of the estimated annual income. It could not be reduced further without endangering operations. The reduction from $200.00 to $175.00 per class was covered to a large extent by higher fees for other services.

Comment: The philosophy of H.R. 6260 is to recover no more than 100%. Final fees should recover this level and no more.

Reply: Projecting processing costs three years in advance can never be absolutely accurate. The Office must have sufficient funds to process anticipated workloads under the fees set during fiscal years 1983–1985 when costs are expected to be somewhat higher than present costs.

Comment: One suggestion involved retaining Part 4 of 37 CFR, at least for the present. Occasional users of the registration system find it to be a readily available reference. Certain information in the forms is available from

no other source. The speaker believed the time pressures to implement the fee changes precluded proper consideration of the merits of Part 4.

Reply: The period for comment on deletion of Part 4 has been extended to August 13, 1982 to allow for additional public comment and internal consideration.

Comment: The suggestion was made that references to affidavits and oppositions should be eliminated from § 2.85(e) as the handling of late filed fees for these items is already covered directly in §§2.101(c), 2.162(d) and 2.167(g).

Reply: This suggestion was implemented.

Comment: A suggestion was made that §§2.101(c), 2.162(d) and 2.167(g) dealing with oppositions and affidavits under Section 8 and Section 15 be amended to require payment of all late filed fees within the time period specified in the notification by the Office.

Reply: All of the sections state that the affidavit or opposition "will not be refused if the required fee(s) . . . are filed in the Patent and Trademark Office within the time limit set forth in the notification of this defect by the Office." This language is considered sufficient to require payment of all fees or have the opposition, affidavit or declaration refused.

Comment: One suggestion was made to either cite §2.6 in all sections being changed relative to fees or to cite it in none.

Reply: Citations of §2.6 have been added to §2.101(c) and §2.146(b) to conform to §2.162(d) and §2.167(g).

Comment: It was suggested that the fee for a combined section 8 and 15 affidavit needed to be specified in the rules.

Reply: Section 2.6 has been changed to provide this combined fee.

DISCUSSION OF SIGNIFICANT DIFFERENCES BETWEEN PROPOSED AND FINAL RULES

A number of changes which were made as a result of the comments received and further review of the proposed rulemaking are identified below.

Deletion of Part 4 has been deferred for further comments by Aug. 13, 1982 (see 47 FR 32458, July 27, 1982). As elimination of Part 4 is not essential to the setting of fees, and does not have to be in place 60 days before implementation, it was decided to ask for further public comment.

Section 2.85(e) has been revised to eliminate the references to oppositions and affidavits. Because the handling of late filed fees for these items is specified elsewhere, these references in §2.85(e) were redundant and confusing.

Both alternatives of §2.6 have been revised to add a fee for a combined affidavit under sections 8 and 15 of the Act. In order to prevent possible confusion by users of the Trademark system, it was included separately.

IMPLEMENTATION OF TRADEMARK FEE REVISION

The effective date of the trademark fee revisions contained in this rulemaking is Oct. 1, 1982.

* * * * *

The changes which will become effective on October 1, 1982, upon enactment of H.R. 6260 as a Public Law prior to Oct. 1, 1982, are (1) the rule changes common to Public Law 96–517 and H.R. 6260, and (2) the rule changes under H.R. 6260, which appear in Alternative B. The rule changes common to Public Law 96–517 and H.R. 6260 will become effective on Oct. 1, 1982, whether or not H.R. 6260 is enacted as a Public Law prior to Oct. 1, 1982.

* * * * *

Upon enactment of H.R. 6260 as a Public Law prior to October 1, 1982, the rule changes in Alternative B will become effective on Oct. 1, 1982, in which case the rule changes in Alternative A will not become effective on Oct. 1, 1982.

Any fee which is due and payable on or after Oct. 1, 1982, must be paid in the amount and in accordance with the procedures contained in this rulemaking. For purposes of determining the amount of the fee to be paid, the date of mailing indicated on a proper Certificate of Mailing under §1.8 will be considered to be the date of receipt in the Office. In order to ensure clarity in the implementation a discussion of the implementation of Section 2.6 is set forth below:

IMPLEMENTATION OF SECTION 2.6

Fees set forth in Section 2.6 must be paid in the amounts set forth in this section on or after Oct. 1, 1982. Any additional fees which become due under §2.6 in pending applications on or after Oct. 1, 1982, or which have not been paid prior to Oct. 1, 1982, must be paid in the amounts set forth in this section even though the application was filed prior to Oct. 1, 1982. For example, if an application filed prior to Oct. 1, 1982, is amended on or after Oct. 1, 1982, to include additional classes, the fee set forth in §2.6(a) must be paid per class added.

IMPLEMENTATION OF CERTAIN SECTIONS DEFERRED FOR FURTHER COMMENTS

As a result of additional comments presented during the hearing on the proposed trademark fees, the period for written comments on the deletion of Part 4 has also been extended until August 13, 1982, to provide an additional opportunity for interested persons to comment on this proposed change (see 47 FR 32458, July 27, 1982). Since it is not essential that this deletion be published by Aug. 2, 1982, it is appropriate to extend the period for comments. No additional proposal will be published and no additional hearing will be held prior to a decision on whether or not to delete Part 4 as proposed.

OTHER CONSIDERATIONS RELATING TO PATENT AND TRADEMARK FEE REVISIONS

Environmental, energy, and other considerations: The rule change will not have a significant impact on the quality of the human environment or the conservation of energy resources.

This rule change is in conformity with the requirements of the Regulatory Flexibility Act (Public Law 96–354), Executive Order 12291, and the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et. seq.*).

The rule change will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act. Pub. L. 96–354) for several reasons. Public Law 96–517 and H.R. 6260 have both taken into consideration the impact they may have on small entities. The fees under Public Law 96–517 are set to recover 50% of patent and trademark processing costs rather than full costs and generally the rate of increase in the fees is less than that of inflation since the last increase in fees in 1965. Further, the rules implementing Public Law 96–517 take into consideration small entities by setting a lower patent filing fee than issue fee to recover the required level of patent processing costs. The lower filing fee permits a small entity to file a patent application for a relatively low cost and not have to pay the higher balance of fees required to achieve Public Law 96–517 recovery levels until examination is complete and it is known that a patent will issue. Under H.R. 6260 and this rulemaking, small entities would be able to pay reduced fees for filing patent applications and for the issuance and maintenance in force of patents. In general, the rule change will also expedite proceedings before the Patent and Trademark Office, changing existing procedures where they can be simplified.

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291. The annual effect on the economy will be less than $100 million. There will be no major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. There will be no significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-

based enterprises to compete with foreign-based enterprises in domestic or export markets.

This rule change will not impose a burden under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et. seq.*, since no significant additional record keeping or reporting requirements are placed upon the public. In fact, some paperwork, especially that related to requests for extensions of time, will be reduced.

List of Subjects in 37 CFR Parts 1 and 2

Administrative practice and procedure, Courts, Inventions and patents, Lawyers, Nonprofit organizations, Small businesses, Trademarks.

AMENDMENT OF REGULATIONS

For the reasons indicated above and pursuant to the authority given to the Commissioner of Patents and Trademarks by 35 U.S.C. 6, and under Sections 31 and 41 of the Trademark Act of July 5, 1946, 15 U.S.C. §§1113, and 1123, Parts 1 and 2 of Title 37, Code of Federal Regulations, are amended as set forth below.

GERALD J. MOSSINGHOFF,
July 14, 1982. *Commissioner of Patents and Trademarks.*

* * * * *

[Note: H.R. 6260 became Public Law 97–247 on Aug. 27, 1982. Rules that became effective Oct. 1, 1982 are those rules common to Public Law 96–517 and H.R. 6260 and those set forth in Alternative B. The adopted rules are reproduced in the notice entitled "Revision of Patent and Trademark Fees Confirmation," published at 1022 O.G. 21, which is reprinted immediately following this notice.]

[1021 O.G. 19]

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(39) **DEPARTMENT OF COMMERCE**
Patent and Trademark Office
37 CFR Parts 1 and 2
[Docket No. 2714–129]
Revision of Patent and Trademark Fees Confirmation

Agency: Patent and Trademark Office, Commerce.

Action: Confirmation of rules.

Summary: This document confirms certain rule changes for patent and trademark fees and fee-related procedures which take effect on Oct. 1, 1982. These rule changes implement H.R. 6260 which was enacted as Public Law 97–247 on Aug. 27, 1982.

Effective Date: Oct. 1, 1982.

For Further Information Contact: As to the patent rules contact: R. Franklin Burnett, by telephone at (703) 557–3054 or by mail addressed to the Commissioner of Patents and Trademarks, Attention: R. Franklin Burnett, Rm 3–11A13, Washington, D.C. 20231.

As to the trademark rules contact: Miss Maude Williams, by telephone at (703) 557–2222 or by mail addressed to the Commissioner of Patents and Trademarks, Attention: Miss Maude Williams, Rm. 3–11C17, Washington, D.C. 20231.

Supplementary Information: The Patent and Trademark Office is required by law to publish a notice in the Federal Register of its fees at least 60 days before the effective date thereof (35 U.S.C. 41(g)). Thus, on July 30, 1982 a final rule document was published at 47 FR 33086 setting forth rule changes for patent and trademark fees and procedures which take effect on Oct. 1, 1982. The document was based on the public law in effect at that time, Public Law 96–517, and on H.R. 6260, which was then pending but is now Public Law 97–247. The final rule document published on July 30, 1982, in the Federal Register sets out—

(1) rules that are common to both Pub. L. 96–517 and H.R. 6260 (now Pub. L. 97–247);
(2) Alternative A which contains rule changes implementing Pub. L. 96–517 alone; and
(3) Alternative B which contains rule changes implementing H.R. 6260 (now Pub. L. 97–247).

H.R. 6260 was enacted as Public Law 97–247 on Aug. 27, 1982, and the Patent and Trademark Office hereby confirms that the rule changes common to both Pub. L. 96–517 and H.R. 6260 and Alternative B are those which go into effect on Oct. 1, 1982. The rules under Alternative A are hereby withdrawn. Additional rule changes required by Public Law 97–247 will be made the subject of separate rulemakings.

List of Subjects in 37 CFR Parts 1 and 2

Administrative practice and procedure, Courts, Inventions and patents, Lawyers, Nonprofit organizations, Small businesses, Trademarks.

Amendment of Regulations

For the reasons set out in the preamble, 37 CFR Parts 1 and 2 are confirmed as being amended by the final rule published on July 30, 1982 at 47 FR 33086 as set forth below.

GERALD J. MOSSINGHOFF,
Sept. 14, 1982. *Commissioner of Patents and Trademarks.*

1. The rule changes made in Alternative A relating to patents which begin at 47 FR 33107 and in Alternative A relating to trademarks which begin at 47 FR 33112 are hereby withdrawn.

2. Confirmed as effective Oct. 1, 1982 are the rule changes published July 30, 1982 common to Public Law 96–517 and H.R. 6260 (now Public Law 97–247) and Alternatives B. The rule changes relating to patents common to Public Law 96–517 and H.R. 6260 (now Public Law 97–247) were published on July 30, 1982 at 47 FR 33099. The rule changes relating to patents under Alternative B were published at 47 FR 33108. The rule changes relating to trademarks common to Public Law 96–517 and H.R. 6260 (now Public Law 97–247) were published on July 30, 1982 at 47 FR 33111. The rule changes relating to trademarks under Alternative B were published at 47 FR 33112. Corrections to the July 30, 1982 publication were published on Aug. 4 and 5, 1982 at 47 FR 33688 and 33959.

(Text of adopted rules appears in 37 CFR, revised July 1, 1983.)

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(40) **Department of Commerce**
Patent and Trademark Office
37 CFR Parts 1, 3 and 4
[Docket No. 2827–167]
Revision of Patent and Trademark Fees

Agency: Patent and Trademark Office, Commerce

Action: Final Rule.

Summary: The Patent and Trademark Office is amending the rules of practice in patent and trademark cases to establish procedures for the payment of fees under §41 (a) and (b) of Title 35, United States Code, which are reduced by 50 per centum for independent inventors and nonprofit organizations as required by the public law resulting from H.R. 6260. This action is necessary at this time in order that the procedures for paying the reduced fees will be effective on Oct. 1, 1982, the effective date of the changes in the amounts of Patent and Trademark Office fees established by the public law resulting from H.R. 6260. This final rule also deletes Parts 3 and 4 which contain outdated sample forms and corrects a reference to a section which appears in §1.451.

Effective Date: Oct. 1, 1982.

For Further Information Contact: As to the patent rules contact R. Franklin Burnett by telephone at (703) 557–3054 or by mail addressed to the Commissioner of Patents and Trademarks, Attention: R. Franklin Burnett, Room 3–11A13, Washington, D.C. 20231.

As to the trademark rules contact Miss Maude Williams by telephone at (703) 557–2222 or by mail addressed to the Commissioner of Patents and Trademarks,

Attention: Miss Maude Williams, Room 3–11C17, Washington, D.C. 20231

Supplementary Information: Notices of proposed rulemaking relating to the revision of patent and trademark fees were published in the *Federal Register* on June 28, 1982, at 47 FR 28042-28065 and in the *Official Gazette* on June 29, 1982, at 1019 O.G. 57–120. Oral hearings were held on July 9, 1982. Full consideration has been given to all of the letters, statements, and testimony received at the time. A final rule on "Revision of Patent and Trademark Fees" was published on July 30, 1982 at 47 FR 33086–33112 with corrections in the printing thereof being published on Aug. 4, 1982, at 47 FR 33688 and Aug. 5, 1982, at 47 FR 33959. The final rule was also published in the Official Gazette on Aug. 10, 1982, at 1021 O.G. 19–94. In view of comments received at the hearings, additional time for comment on the rules covered by this change was given until Aug. 13, 1982. The notice extending the time for comment was published on July 27, 1982 at 47 FR 32458.

This final rule is being adopted as soon as possible after the enactment of the public law resulting from H.R. 6260. The Patent and Trademark Office has determined that the requirement of 5 U.S.C. 553 (d) for publication not less than 30 days before its effective date does not apply to this final rule since it will reduce patent fees for independent inventors and nonprofit organizations.

Objectives of Rule Changes

These rule changes are designed to implement the Patent and Trademark Office fees and procedures which are provided for by the public law resulting from H.R. 6260.

Public Law Resulting From H.R. 6260

The public law resulting from H.R. 6260 provides that funds available under the act "shall be used to reduce by 50 per centum the payment of fees under section 41 (a) and (b) of Title 35, United States Code" by independent inventors, small business concerns, and nonprofit organizations. The public law resulting from H.R. 6260 gives the Commissioner authority to establish regulations defining independent inventors and nonprofit organizations. The public law resulting from H.R. 6260 defines small business concerns by reference to §3 of the Small Business Act and regulations established by the Small Business Administration. This rulemaking establishes regulations defining independent inventors and nonprofit organizations. The Small Business Administration is establishing the definition of a small business concern for the purpose of paying reduced fees under the public law resulting from H.R. 6260. This rulemaking also establishes the procedures which will be followed by independent inventors and nonprofit organizations when paying the reduced fees.The procedures to be followed by small business concerns when paying the reduced fees will be established in a separate final rule.

Discussion of Specific Sections

The following sections are changed by this final rule, effective Oct. 1, 1982:

Section 1.9, as amended, adds paragraphs (c), (e), and (f) which define "independent inventor" and "nonprofit organizations" as used in Title 37, Code of Federal Regulations, Chapter I. Each of these along with "small business concern" is identified as a "small entity" for purposes of paying fees which are set under §41 (a) and (b) of Title 35, United States Code, as amended by the public law resulting from H.R. 6260. Paragraph (d) of §1.9 relates to the definition of small business concern which is being established by the Small Business Administration. Accordingly, proposed paragraph 1.9(d) is not being promulgated at this time.

The public law resulting from H.R. 6260 authorizes the Commissioner to establish regulations defining independent inventors and nonprofit organizations. Section 1.9(c) defines an independent inventor as any inventor who (1) has not assigned, granted, conveyed, or licensed, and (2) is under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who could not likewise be classified as an independent inventor if that person had made the invention, or to any concern which would not qualify as a small business concern or a nonprofit organization. Once an individual sole inventor, or one of several joint inventors, has assigned, granted, conveyed, or licensed, or comes under an obligation to assign, grant, convey, or license, any rights to the invention to anyone who could not likewise obtain status as a small entity, the inventor(s) will no longer be entitled to pay fees in the amounts established for an independent inventor (§1.9(c)). Section 1.9 (c) will permit an individual inventor to make an assignment, grant, conveyance, or license of partial rights in the invention to another individual or individuals who could qualify as an independent inventor or inventors if they had made the invention. In addition,§1.9 (c) will permit an individual inventor to make an assignment, grant, conveyance, or license of partial rights in the invention to a small business concern or nonprofit organization. Under the circumstances described in the previous two sentences the individual inventor could still qualify as an independent inventor. However, if the independent inventor assigned, granted, conveyed, or licensed, or came under an obligation to assign, grant, convey, or license, any rights to the invention to any individual or organization which could not qualify as a small entity (§1.9 (f)), then the inventor would no longer qualify as an independent inventor.

Proposed section 1.9 (d) relating to the definition of a small business concern is not being promulgated at this time.

Section 1.9(e) defines a nonprofit organization by utilizing and broadening the definition contained in 35 U.S.C. 201 (i). The term "university or other institution of higher education" as used in §1.9 (e) means an educational institution which (1) admits as regular students only persons having a certificate of graduation from a school providing secondary education, or the recognized equivalent of such a certificate, (2) is legally authorized within the jurisdiction in which it operates to provide a program of education beyond secondary education, (3) provides an educational program for which it awards a bachelor's degree or provides not less than a two-year program which is acceptable for full credit toward such a degree, (4) is a public or other nonprofit institution, and (5) is accredited by a nationally recognized accrediting agency or association. The definition of "university or other institution of higher education" as set forth herein essentially follows the definition of "institution of higher education" contained in 20 U.S.C. 1141(a). Institutions which are strictly research facilities, manufacturing facilities, service organizations, etc., are not intended to be included within the term "other institution of higher education" even though such institutions may perform an educational function or publish the results of their work.

Section 1.9(f) identifies an independent inventor, a small business concern, or a nonprofit organization as a "small entity" for purposes of paying fees set under §41 (a) and (b) of Title 35, United States Code, as amended by the public law resulting from H.R. 6260. Fees established under §41 (c) or (d) of Title 35, United States Code, will not be reduced for small entities since such a reduction is not permitted or authorized by the public law resulting from H.R. 6260. Paragraphs (c), (e), and (f) of §1.9 should be read together with §§1.27 and 1.28 which deal with establishing status as a small entity and the effect thereof.

New §1.27 provides in paragraph (a) that any person seeking to establish as a small entity, as defined in §1.9 (f) for the purpose of paying reduced fees, must file a statement to that small entity. Paragraph 1.27(b) provides specifically for inventors filing statements claiming status as independent inventors. Paragraph 1.27 (c) relating to claiming status as a small business concern is not being promulgated at this time, but will be subject of a separate final rule. Paragraph 1.27 (d) provides for claiming status as a nonprofit organization. Under §1.27,

as long as all of the rights remain in small entities, the fees established for a small entity can be paid. This includes circumstances where the rights were divided between an independent inventor, a small business concern and a nonprofit organization or any combination thereof.

New §1.28 provides guidance as to the effect of failure to establish, or notify the Office of any change from, small entity status. Paragraph 1.28 (a) provides that once status as a small entity has been established in an application or patent, without the filing of a further verified statement pursuant to §1.27, unless the Office is notified of a change in status. Under paragraph 1.28 (a), status as a small entity in one application or patent does not affect any other application or patent except in applications filed under §1.60 where a reference is made to a verified statement in a parent application. Paragraph 1.28 (b) requires that notification of any change in status resulting in loss of entitlement to small entity status be filed in the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. Section 1.28 also provides guidance as to the effect of improperly establishing status as a small entity. The intent of the reduced fees for small entities is to soften the impact of the fee increases under §41(a) and (b) of Title 35, United States Code, as such sections are amended by the public law resulting from H.R 6260, upon those who are least able to absorb the increased fees without overall damage to their ability to participate in the patent system through the filing, issuing and maintaining of patents. Accordingly, any attempt to improperly establish status as a small entity will be viewed as a serious matter by the office and paragraph 1.28(d) indicates that any attempt to fraudulently establish status as a small entity or pay fees as a small entity will be considered as a fraud practiced or attempted on the Office. In addition, improperly and through gross negligence establishing status as a small entity or paying fees as a small entity will be considered as a fraud practiced or attempted on the Office. Normally, the Office will not question a claim to status as a small entity. However, if the Office must resolve such an issue in a question arising before it, the Office will look to the actual or practical status ot the individual or oganization claiming status as a small entity rather than the professed or apparent status.

Section 1.451, paragraph (b), is amended to correct a reference to another section of the regulations.

Parts 3 and 4 are removed to eliminate all of the patent and trademark forms from the Code of Federal Regulations. The Patent and Trademark Office has prepared a booklet entitled "Patent and Trademark Forms Booklet" which is available for sale to the public from the Superintendent of Documents and which includes full size copies of substantially all the forms in the Code of Federal Regulations in view of the difficulty of keeping such forms is not mandatory.

Discussion of Significant Differences Between Proposed and Final Rules

A number of changes which have been made to §§1.9, 1.27 and 1.28 as a result of the comments received and further review of the proposed rulemaking are identified below.

Paragraph (c) of §1.9 has been changed from that proposed to simplify the definition by removing the words "including (i) the right to make, use, or sell the invention, and (ii) the right to exclude others from making, using, or selling the invention". No change in substance is intended by removing these words since the phrase "any rights in the invention" obviously is inclusive of all rights regardless of how they are, or would be, transferred. The words "or otherwise" have also been removed to simplify the definition without a change in substance.

Paragraph (d) of §1.9 is not being promulgated by this rule change.

Paragraph (e) of §1.9 is changed from that proposed by adding the words "located in any country" in item (e) (1) to clarify the fact that a university or other institution of higher education can qualify regardless of location. Paragraph (e) is also changed from that proposed by adding an item (4) to clarify that a nonprofit organization if it could qualify as a nonprofit organization under item (2) or (3) of paragraph (e) "if it were located in this country." Thus, under paragraph (e) of §1.9 nonprofit organizations will be treated the same for purposes of paying fees regardless of location.

Paragraph (a) of §1.27 has been changed from that proposed by substituting the words "any fee paid as a small entity". This change is intended to clarify the fact that a verified statement is not required with every fee.

Paragraph (b) of §1.27 has been changed from that proposed to clarify who is to file the verified statement. The verified statement for a small business concern or nonprofit organization is to be filed by "the owner of the small business concern, or an official of the small business concern or nonprofit organization empowered to act on behalf of the small business concern or nonprofit organization . . ." The term "official" as used in paragraph (b) is intended to include any officer, employee, or part-owner empowered to act on behalf of a small business concern or nonprofit organization.For example, an officer or employee of a corporation empowered to act for the corporation by its board of directors would be qualified to sign such a verified statement.

Paragraph (c) of §1.27 relating to claiming status as a small business concern is not being promulgated at this time, but will be the subject of a separate final rule.

Paragraph (d) of §1.27 has been changed from that proposed in the same manner as paragraph (b) of §1.27 has also been changed from that proposed by adding a reference to §1.9 (e)(4).

Paragraph (a) of §1.28 has been changed from that proposed by adding the words "or patent" in the first and third sentences since the failure to establish status as a small entity could occur in a patent as well as in an application. An exception to the requirement for a verified statement has also been inserted into paragraph (a) of §1.28 for applications filed under §1.60 where the status as a small entity has been established in a parent application and is still proper. Under this change in paragraph (a) of proposed §1.28, the application filed under 1.60 "must include a reference to a verified statement in a parent application if status as a small entity is still proper and desired."

Paragraph (b) of §1.28 has been completely rewritten from that proposed to remove the requirement that the notification of a change in status resulting in loss of entitlement to small entity status must be filed prior to paying the next fee due. Instead, paraggraph (b) of §1.28 provides that after establishment of small entity status, "fees as a small entity may thereafter be paid in that application or patent without regard to a change in status until the issue is due or any maintenance fee is due." Paragraph (b) of §1.28 is also changed from that proposed by removing the sentence stating that payment of any fee as a small entity serves "as a representation that such payment as a small entity is proper at the time the payment is made." This change does not sanction the payment of improper fees, but is no longer necessary in view of another change in paragraph (b) which specifically provides that notification of any change in status resulting in loss of entitlement to small entity status "must be filed in the application or patent prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate pursuant to §1.9." The effect of the changes to paragraph (b) of §1.28 is to permit status to be established and then checked only (1) at the payment of the issue fee and (2) at the time of payment of each maintenance fee. This means that only four checks are required during the pendency and term of a patent after initial establishment of small entity status if such establishment was prior to payment of the issue fee. The last sentence of paragraph (b) has been changed from that proposed by inserting the words "of change in status" after "notification" for clarity.

Paragraph (c) of §1.28 has been changed from that proposed to require a verified statement explaining how the error in good faith occurred only in situations where the error occurred. This change from paragraph (c) as proposed will reduce paperwork and will provide a three-month grace period to correct errors with no explanations required for correction during that three-month period. The change has also been made to alleviate concerns about paragraph (d) of §1.28 which is being adopted as proposed.

Response to Comments on the Patent Rules

Specific comments were received on a number of the sections. All of the comments, including the oral testimony and the written comments, were considered in adopting the changes set forth herein.

Written comments on the patent rules and forms affected by this final rule were received from three patent law groups and thirteen individuals. The three patent law groups were (1) the American Patent Law Association; (2) the Patent, Trademark, and Copyright Section of the Virginia State Bar; and (3) the Patent, Trademark and Copyright Law Section of the Bar Association of the District of Columbia.

Oral comments were presented at the hearing on behalf of two patent law groups.

The comments appear below along with replies thereto.

Comment:

One comment suggested that the definition of "independent inventor" be simplified.

Reply:

The definition of "independent inventor" has been simplified without a change in substance by removing the words "including (i) the right to make, use, or sell the invention, and (ii) the right to exclude others from making, using, or selling the invention."

Comment:

One comment suggested that there is no need to include any more than a simplified statement that a "nonprofit organization includes a university or other institution of higher education"

Reply:

The suggestion has not been adopted since it is the intent of the rules to delireate as clearly as possible what organizations can qualify as nonprofit organizations without having to expend undue resources deciding each request on a case-by-case basis.

Comment:

One comment suggested that §1.9(e) discriminates against foreigners and thus violates the principle of national equality set forth in the Stockholm text of the Paris Convention for the Protection of Industrial Property.

Reply:

Section 1.9(e), as promulgated, defines a nonprofit organization in such a way that it is clear that foreigners are not excluded.

Comment:

One comment questioned whether or not government organizations can qualify as nonprofit organizations and more specifically, whether or not a government research facility can qualify under the broad definition of a nonprofit scientific or educational organization. Another comment recommended that §1.9(e) be expanded to include the U.S. Government in the definition of a "nonprofit organization."

Reply:

Government organizations as such, whether domestic or foreign, cannot qualify as nonprofit organizations as defined in §1.9(e). Section 1.9(e) was based upon 35 U.S.C. 201(i), as established by Public Law 96-517. The limitation to "an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c)(3)) and exempt from taxation under section 501(a) of the Internal Revenue Code (26 U.S.C. 501(a))" would by its nature exclude the U.S. government and its agencies and facilities, including research facilities and government corporations. State and foreign governments and governmental agencies and facilities would be similarly excluded. Section 1.9(e) is not intended to include within the definition of a nonprofit organization government organizations of any kind located in any country. A university or other institution of higher education located in any country would qualify, however, as a "nonprofit organization" under §1.9(e) even though it has some government affiliation since such institutions are specifically included.

Comment:

One comment was directed to, and opposed, Public Law 96-517 and H.R. 6260 rather than the specific provisions of §§1.9, 1.27 and 1.28 on the ground that the concept of a self-supporting agency is ill-conceived, shortsighted and wrong.

Reply:

Public Law 96-517 and H.R. 6260 are not issues for consideration in this rule change.

Comment:

One comment asserted that the imposition of different fees depending upon the status of an applicant is unwise, unworkable, and will not "improve the efficiency of the Patent Office", while another comment urged the Office to "disavow the proposal for a two-tier fee system and adopt a different approach to assuring that patent and trademark fees are set so that individual inventors and small businesses can continue to obtain the protection of the patent and trademark system." Another comment supported the two-tier fee system, particularly as related to universities.

Reply:

The imposition of different fees is a legislative mandate imposed by the public law resulting from H.R. 6260 and is not an issue for consideration in this rule change.

Comment:

Four comments expressed concern that small entity status is required to be confirmed each time a fee as a small entity is paid. Alternative procedures which involve (1) confirming status at the time of filing and at the time the issue fee is paid, or (2) allowing a statement of status to hold for a period of time were recommended.

Reply:

The last sentence in §1.27(a) states that "[s]uch a verified statement need only be filed once in an application or patent and remains in effect until changed." It was not intended that such statements would be required each time a fee is paid. In order to clarify §1.27(a), the first sentence has been changed to require the statement prior to or with the first fee paid as a small entity. Thereafter, notice is only required where a change in status occurs. In addition, §1.28(b) has been rewritten to provide that "[o]nce status as a small entity has been established in an application or patent, fees as a small entity may thereafter be paid in that application or patent without regard to a change in status until the issue fee is due or any maintenance fee is due."

Comment:

One comment suggested that a paragraph 1.27(e) be added which would require confirmation of small entity status at the time of paying the patent issue fee and each maintenance fee and that this be done by a statement which designates the applicant's small entity status as of the close of the last fiscal year next preceding the date of the statement.

Reply:

The suggested paragraph has not been added. However, paragraph (b) of §1.29 has been completely rewritten to permit status to be established and then checked only (1) at the payment of the issue fee and (2) at the time of payment of each maintenance fee. Instead of requiring

papers to be filed confirming status as suggested in the comment, the rules as adopted require that "[n]otification of any change in status resulting in loss of entitlement to small entity status must be filed in the application or patent prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate pursuant to §1.9." Paragraph (b) of §1.28, as promulgated, is considered preferable to the suggested paragraph (e) of §1.27 since it will eliminate the filing of a confirming statement where there has been no change in status as a small entity. This reduces unnecessary paperwork.

Comment:

One comment suggested that verified statements of small entity status need not be filed in Rule 60 applications.

Reply:

The suggestion was adopted and is reflected by the change in §1.28(a). In such applications, it will be sufficient to include a reference to a verified statement establishing small entity status in a parent application if status as a small entity is still proper and desired.

Comment:

One comment suggested that proposed paragraph 1.28(b) be amended by inserting the words "believed to be" after "small entity is" in the second sentence.

Reply:

Paragraph (b) of §1.28 as promulgated does not contain the sentence to which the suggestion is directed.

Comment:

One comment suggested that paragraph (c) of §1.28 be amended by deleting the word "verified" so that a statement explaining how an error in good faith occurred can be made "on the basis of information and belief."

Reply:

The suggestion has not been adopted. However, paragraph (c) of §1.28 as promulgated permits the correction of errors without a verified statement if the correction is accomplished within three months after the date the error occurred.

Comment:

Three comments expressed concern about the provision dealing with fraud on the Patent and Trademark Office because of some questionable act in connection with paying fees as a small entity and indicated that some persons have raised a question as to the Office's authority to designate the payment of a lesser fee as fraud. The comments suggested that proposed §1.28 be withdrawn and turned over to an ad hoc group of Patent and Trademark Office officials and practitioners for immediate examination and timely comment.

Reply:

The period for comments was extended until Aug. 13, 1982, as an alternative to, and in response to, the suggestion that §1.28 be withdrawn and turned over to an ad hoc committee. The extended period for comments has now expired and all comments which have been received have been carefully considered. In response to the statement that some persons have raised a question regarding the Office's authority to designate payment of a lesser fee as fraud, no authority has been cited which would establish or suggest that the Office does not have the authority to adopt this section. Paragraph (d) of § 1.28 has been strictly limited to those situations in which there is an attempt to fraudulently establish entity, or improperly and through gross negligence establish status or pay fees as a small entity. Paragraph (d) of §1.28 is clearly within the rule-making authority provided to the Commissioner pursuant to 35 U.S.C. 6 to protect the integrity of the system established by the public law resulting from H.R. 6260, whereby fees are reduced for small entities. In order to alleviate the concerns expressed about paragraph (d) of §1.28, paragraph (c) of §1.28 has been changed from that proposed to require a verified statement explaining how the error in good faith occurred only in situations where the error is not corrected within three months of the date on which the error occurred. This three-month grace period to correct errors with no explanations required for correction during that three-month period should reduce the concern about paragraph (d) of §1.28.

Comment:

One comment by an attorney (1) objected to and requested removal of the second sentence of §1.28(d) because he has to rely on the information provided by the client and does not have the facilities to check the reliability of information the client provides relating to the client's status as a small entity, and (2) raised the question as to how much investigation any attorney or other individual must make in order to avoid being guilty of "gross negligence" under §1.28(d).

Reply:

The rules do not authorize an attorney to sign a verified statement establishing status as a small entity on behalf of a client. The client has to sign the verified statement. Paragraph (b) of §1.27 requires that any verified statement filed on behalf of an independent inventor must be signed by the independent inventor except as provided in §§1.42, 1.43, or 1.47. Paragraph (d) of §1.27 requires that any verified statement filed on behalf of a nonprofit organization must be signed by an official of the nonprofit organization empowered to act on behalf of the organization. The intent of paragraphs (b) and (d) of §1.27 is that the verified statement be signed by the person in the best position to know the facts as to whether or not status as a small entity can be properly established. Insofar as the attorney's irresponsibilities and duty to investigate are concerned, these do not differ from those presently owed the Office under §§1.56, 1.346, and 1.555.

Comment:

One comment suggested that paragraph (d) of §1.28 be replaced by a provision under which a "stiff fine" would be assessed against "a wrongdoer who has not paid fees in good faith."

Reply:

The suggestion has not been adopted. Assessing a fine as the only penalty against "a wrongdoer who has not paid fees in good faith" might tend to encourage the payment of incorrect fees on the theory that it is unlikely that such a matter would be brought to the attention of the Office.

Comment:

Three comments opposed the proposed deletion of Part 3 for the reasons that (1) it is useful to have an up-to-date set of forms and (2) there does not seem to be a pressing need to delete the forms.

Reply:

The Patent and Trademark Office has prepared a booklet entitled "Patent and Trademark Forms Booklet" which includes full size copies of substantially all of the forms in Part 3. Since the forms currently in Part 3 are not "up-to-date" as was suggested in the comment, no present need is seen to maintain Part 3.

Response to Comments on the Trademark Rules

Specific comments were received on the proposed deletions of Part 4. All of the comments included in the written submissions and the oral testimony were considered.

Written comments were received from four individuals. Oral comments restating previously submitted written comments on Part 4 were presented by one individual on behalf of his law firm.

These comments appear below along with replies thereto.

Comment:

One comment stated that there are rules in Part 4 which are not set forth elsewhere. Such guidelines and

information include, among others, the types of commerce on which an application may be based and a requirement for the use of bond paper for typed drawings.

Reply:

Part 4 does not really carry the effect of rules because the forms are not mandatory, but are merely illustrative. The information referred to by this individual can be found elsewhere, such as in the Trademark Manual of Examining Procedure. Furthermore, despite the fact that the forms do not carry the force of rules, any correction or modification to them requires the cumbersome and time-consuming processes that are associated with a rules change.

Comment:

Several comments reflected the opinion that some attorneys, particularly those who do not specialize in trademark matters, may rely on the forms that appear in Part 4. It was believed that these individuals may not have or be aware of the compilation of forms identified as the "Patent and Trademark Office Forms Booklet." In the absence of such forms in Part 4, these individuals may devise their own application formats. Such a practice would result in increased informalities which, in turn, would result in unnecessary correspondence and delayed prosecution. In addition, the commenters believed that the number of written and oral inquiries to the Office of the Director of the Trademark Examining Operation would increase dramatically.

Reply:

The Office of the Director of the Trademark Examining Operation currently has a general information telephone line to answer inquiries and to accept requests for trademark application forms and related literature. While the Office of the Director indicates the availability of the forms booklet to many callers, copies of the appropriate trademark application form are sent to those individuals who request them. It is more likely that an individual who is unaware of the trademark application form would call the Office of the Director to request an application form than create one for the particular purpose.

Comment:

One individual, aware of the Office's plans for automation of the trademark program, saw the present deletion of the forms to be inappropriate. This individual felt that the deletion of the forms at this point would signal to the user community that the Office no longer had any interest in receiving applications in any particular format. To take such a position within a year or two of the introduction of a rigidly standardized application format was, in the opinion of this commenter, unwise. The adoption of a machine-readable application form would require greater, rather than diminished, reliance on a prescribed format.

Reply:

Within the next year or two, the Office will begin experimenting with the use of optical character recognition (OCR) equipment to automate the current data capture processes. Trademark application formats that are compatible with this equipment are likely to require special sizing and printing and, as such, are not acceptable for reduced size printing in the Code of Federal Regulations. If the existing forms were to be maintained in Part 4, they would remain available for use by applicants. As a result, the implementation of the new standardized application formats would be made more difficult.

Comment:

One commenter believed that since the next reprinting of Volume 37 of the Code of Federal Regulations will be in July, 1983, there is no pressing need to eliminate Part 4 at this time. This individual felt that users of the trademark registration system should be given additional opportunity to consider the significance of removing Part 4.

Reply:

Only four comments have been received on the deletion of Part 4. The elimination of Part 4 at this time will guarantee that the forms do not appear in the 1983 reprinting of the CFR. Of course, they will appear in the 1982 version of the CFR booklet and will be available until the new edition is published. In this matter, future access to these forms will be limited and those requiring help may contact the Office and receive the proper trademark forms.

Implementation of §§1.9, 1.27, and 1.28

Status as a small entity can be established in any application or patent for which a fee is due on or after Oct. 1, 1982, and in which small entity status is available and desired.

Other Considerations Relating to Patent and Trademark Fee Revisions

Environmental, energy, and other considerations: The rule change will not have a significant impact on the quality of the human environment or the conversation of energy resources.

This rule change is in conformity with the requirements of the Regulatory Flexibility Act (Public Law 96–354), Executive Order 12291, and the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et. seq.*).

The rule change will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act. Pub. L 96–354) for several reasons. The public law resulting from H.R. 6260 has taken into consideration the impact the increase in fees may have on small entities. Under the public law resulting from H.R. 6260 and this rulemaking, small entities will be able to pay reduced fees for filing patent applications and for the issuance and maintenance in force of patents. In general, the rule change will also expedite proceedings before the Patent and Trademark Office, changing existing procedures where they can be simplified.

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291. The annual effect on the economy will be less than $100 million. There will be no major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. There will be no significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

This rule change will not impose a burden under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et. seq.*, since no significant additional record keeping or reporting requirements are place upon the public.

List of Subjects in 37 CFR Parts 1, 3 and 4

Administrative practice and procedure, Colleges and universities, Courts, Fraud, Inventions and patents, Nonprofit organizations, Small businesses, Trademarks.

(Text of adopted rules appears in 37 CFR, revised July 1, 1983.)

Aug. 26, 1982.

GERALD J. MOSSINGHOFF,
Commissioner of Patents and Trademarks.

[1022 OG 29]

DEPARTMENT OF COMMERCE

(41) **Patent and Trademark Office**

37 CFR Part 1

[Docket No. 2909-187]

Revision of Patent and Trademark Fees

Agency: Patent and Trademark Office, Commerce

Action: Final rule.

Summary: The Patent and Trademark Office is amending the rules of practice in patent and trademark cases to establish a definition and procedures for the payment of fees under section 41(a) and (b) of Title 35, United States Code, by small business concerns as required by Pub. L. 97–247. This action adopts the definition of a "small business concern" for purposes of paying patent

fees established by the Small Business Administration and is necessary at this time in order that the procedures for paying reduced fees will be effective on Oct. 1, 1982, the effective date of the changes in the amounts of Patent and Trademark Office fees established by Pub. L. 97–247.

Effective Date: Oct. 1, 1982

For Further Information Contact: R. Franklin Burnett by telephone at (703) 557-3054 or by mail addressed to the Commissioner of Patents and Trademarks, Attention: R. Franklin Burnett, Room 3-11A13, Washington, D.C. 20231.

Supplementary Information: A notice of proposed rulemaking was published in the Federal Register on June 28, 1982, at 47 FR 28042–28063 and in the *Official Gazette* on June 29, 1982, at 1019 O.G. 57-120. Oral hearings were held on July 9, 1982. Full consideration has been given to all of the letters, statements, and testimony received at the time. A final rule on "Revision of Patent and Trademark Fees" was published on July 30, 1982 at 47 FR 33086–33112 with corrections in the printing thereof being published on Aug. 4, 1982, at 47 FR 33688 and on Aug. 5, 1982 at 47 FR 33959. The final rule was also published in the *Official Gazette* on Aug. 10, 1982, at 1021 O.G. 19–94. In view of comments received at the hearings, additional time for comment on certain rules, including those covered by this change, was given until Aug. 13, 1982. The notice extending the time for comment was published on July 27, 1982 at 47 FR 32458. A final rule relating to definitions of "independent inventor" and "nonprofit organizations" was published on Sept. 10, 1982 at 47 FR 40134–40140.

Objectives of Rule Changes

These rule changes are designed to implement the Patent and Trademark Office fees and procedures which are provided for by Pub. L. 97–247.

Public Law 97–247

Pub. L. 97–247, signed Aug. 27, 1982, provides that funds available under the act "shall be used to reduce by 50 per centum the payment of fees under section 41(a) and (b) of title 35, United States Code" by independent inventors, small business concerns, and nonprofit organizations. The Commissioner has established regulations defining independent inventors and nonprofit organizations. Pub. L. 97–247 defines small business concerns by reference to Section 3 of the Small Business Act and regulations established by the Small Business Administration. The Small Business Administration has now established the definition of a small business concern for the purpose of paying reduced fees under Pub. L. 97–247. That definition is hereby incorporated into the patent rules of practice in §1.9(d). This rulemaking also establishes the procedures which will be followed by small business concerns when paying the reduced fees.

Discussion of Specific Sections

The following sections are changed by this final rule, effective Oct. 1, 1982:

Section 1.9, as amended, adds paragraph (d) which defines small business concern as used in Title 37, Code of Federal Regulations, Chapter I. A small business concern is identified as a "small entity" for purposes of paying fees which are set under section 41(a) and (b) of Title 35, United States Code, as amended by Pub. L. 97–247.

Section 1.9(d) defines a small business concern by reference to and incorporation of §121.3–18 of Title 13, Code of Federal Regulations. A small business concern is defined therein as any business concern (1) whose number of employees, including those of its affiliates, does not exceed 500 persons and (2) which has not assigned, granted, conveyed, or licensed, and is under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who could not be classified as an independent inventor if that person had made the invention, or to any concern which would not qualify as a small business concern or a nonprofit organization under this section. The section further defines affiliates of concerns and defines also the terms "employees" and "number of employees." Concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both. The number of employees a business concern has is determined by counting the number of persons of the concern and its affiliates employed on a full-time, part-time or temporary basis during the previous fiscal year of the concern and of its affiliates. The number of employees is the average over the fiscal year of the persons employed during each of the pay periods of the fiscal year. Business concerns located in any country which meet the small business definition and which comply with the applicable procedures can qualify as a "small business concern". Under the definition, a small business concern would no longer qualify as a small business concern if any rights were assigned to any individual or concern which could not qualify as a small entity pursuant to §1.9(f), or if the concern came under an obligation to assign any rights to any individual or concern which could not qualify as a small entity.

Section 1.9(d) also incorporates paragraph (b) of 13 CFR 121.3–18 which provides for appeals to the Small Business Administration from Patent and Trademark Office adverse initial size determinations.

Paragraph 1.27(c) provides for claiming status as a small business concern. Any person seeking to establish status as a small entity, for the purpose of paying reduced fees, must file a statement to that effect prior to or with the payment of the first fee paid as a small entity. Under §1.27, as long as all of the rights remain in small entities, the fees established for a small entity can be paid. This includes circumstances where the rights were divided between an independent inventor, a small business concern and a nonprofit organization or any combination thereof.

A number of changes which have been made to §§1.9 and 1.27 as a result of the comments received and further review of the proposed rulemaking are identified below.

Paragraph (d) of §1.9 has been changed from that proposed so as to incorporate into §1.9(d), the definition established by the Small Business Administration in §121.3–18 of Title 13, Code of Federal Regulations. The definition differs from that proposed in specifying the number of employees constituting a small business concern and specifying that the concern must be one which has not assigned, granted, conveyed, or licensed, and is under no obligation under contract or law to assign, grant, convey or license any rights in the invention to any person or concern which could not be classified as an independent inventor, small business concern, or nonprofit organization.

Paragraph (c) of §1.27 has been changed from that proposed to clarify who is to file the verified statement. The verified statement for a small business concern is to be signed by "the owner or an official of the small business concern empowered to act on behalf of the concern." The term "official" as used in paragraph (c) is intended to include any officer, employee, or part-owner empowered to act on behalf of a small business concern. For example, an officer or employee of a corporation empowered to act for the corporation by its board of directors would be qualified to sign such a verified statement.

Response to Comments on the Patent Rules

Specific comments were received on a number of the sections. All of the comments, including the oral testimony and the written comments, were considered in adopting the changes set forth herein.

Written comments on the rules affected by this final rule were received from three patent law groups and a number of individuals. The three patent law groups were (1) the American Patent Law Association; (2) the Patent, Trademark, and Copyright Section of the Vir-

ginia State Bar; and (3) the Patent, Trademark and Copyright Law Section of the Bar Association of the District of Columbia.

Oral comments were presented at the hearing on behalf of two patent law groups.

The comments appear below along with replies thereto.

Comment

Two comments urged that in view of the "exceedingly complex" definitions of a "small business" in 13 CFR 121.3, the patent system and those associated with it would be best served by setting forth clear guidelines as to whether or not a business qualifies as a small business without reference to the Small Business Act and without incorporation by reference of "the too many pages of SBA regulatory definition."

Reply

Pub. L. 97–247 specifically refers to section 3 of the Small Business Act and regulations established by the Small Business Administration for determining whether or not a business concern qualifies as a small business concern. Pub. L. 97–247 therefore does not permit the establishment of guidelines without reference to the Small Business Act and regulations established by the Small Business Administration. Section 1.9(d), however, does incorporate the definition as established in §121.3–18 of Title 13, Code of Federal Regulations. This will enable persons to utilize §1.9(d) without also referring to a copy of Title 13, CFR.

Comment

One comment argued that §1.27 should be corrected or clarified to indicate that a small business concern would be entitled to the 50 percent fee reduction even though it may grant a non-exclusive or even an exclusive license to some non-small entity.

Reply

The suggestion has not been adopted. Section 1.27 requires that the concern qualify as a small business concern as defined in §1.9(d). Section 1.9(d) defines a small business concern by incorporating 13 CFR 121.3–18, which in turn defines a small business concern as one not exceeding a particular size "which has not assigned, granted, conveyed, or licensed, and is under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor if that person had made the invention, or to any concern which would not qualify as a small business concern or a nonprofit organization under this section." The intent of both 13 CFR 121.3–18 and 37 CFR 1.9(d) and 1.27(c) is to limit the payment of reduced fees under section 41 (a) and (b) of Title 35, United States Code, to those situations in which all of the rights in the invention are owned by small entities, i.e., independent inventors, small business concerns, or nonprofit organizations. To do otherwise would be clearly contrary to the intended purpose of the legislation which contains no indication that fees are to be reduced in circumstances where rights are owned by non-small entities. Adopting the suggestion might, for example, permit a non-small entity to transfer patent rights to a small business concern which would pay the reduced fees and grant an exclusive license to the non-small entity.

Comment

One comment suggested that the specific Small Business Administration regulations which are applicable be specified in §1.9(d).

Reply

The definition of a small business concern as established by the Small Business Administration is now incorporated into §1.9(d).

Implementation of §§1.9 and 1.27

Status as a small entity can be established in any application or patent for which a fee is due on or after October 1, 1982, and in which the individual inventor, small business concern, or nonprofit organization meets the qualifications established for small entity status.

Other Considerations Relating to Patent and Trademark Fee Revisions

Environmental, energy, and other considerations: The rule change will not have a significant impact on the quality of the human environment or the conservation of energy resources.

This rule change is in conformity with the requirements of the Regulatory Flexibility Act (Pub. L. 96–354), Executive Order 12291, and the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*).

The rule change will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act. Pub. L. 96–354) for several reasons. Pub. L. 97–247 has taken into consideration the impact the increase in fees may have on small entities. Under Pub. L. 97–247 and this rulemaking, small entities will be able to pay reduced fees for filing patent applications and for the issuance and maintenance in force of patents.

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291. The annual effect on the economy will be less than $100 million. There will be no major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. There will be no significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

This rule change will not impose a burden under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*, since no significant additional record keeping or reporting requirements are placed upon the public.

List of Subjects in 37 CFR Part 1

Administrative practice and procedure, Inventions and patents, Small businesses.

Amendment of Regulations

For the reasons indicated above and pursuant to the authority given to the Commissioner of Patents and Trademarks by 35 U.S.C. 6, and Pub. L. 97–247, Part 1 of Title 37, Code of Federal Regulations, is amended as set forth below.

PART 1—RULES OF PRACTICE IN PATENT CASES

1. Section 1.9 is amended by adding a new paragraph (d) to read as follows:

§1.9 Definitions.

* * * * *

(d) A small business concern as used in this chapter means any business concern as defined by the Small Business Administration in 13 CFR 121.3–18, published on September 30, 1982 at 47 FR 43273. For the convenience of the users of these regulations, that definition states:

§121.3–18 Definition of small business for paying reduced patent fees under Title 35, U.S. Code

(a) Pursuant to Pub. L. 97–247, a small business concern for purposes of paying reduced fees under 35 U.S. Code 41 (a) and (b) to the Patent and Trademark Office means any business concern (1) whose number of employees, including those of its affiliates, does not exceed 500 persons and (2) which has not assigned, granted, conveyed, or licensed, and is under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor if that person had made the invention, or to any concern which would not qualify as a small business concern or a nonprofit organization under this section. For the purpose of this section concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both. The number of employees of the business concern is the average over the fiscal year of the persons employed during each of

the pay periods of the fiscal year. Employees are those persons employed on a full-time, part-time or temporary basis during the previous fiscal year of the concern.

(b) If the Patent and Trademark Office determines that a concern is not eligible as a small business concern within this section, the concern shall have a right to appeal that determination to the Small Business Administration. The Patent and Trademark Office shall transmit its written decision and the pertinent size determination file to the SBA in the event of such adverse determination and size appeal. Such appeals by concerns should be submitted to the SBA at 1441 L Street, NW., Washington, D.C. 20416 (Attention: SBA Office of General Counsel). The appeal should state the basis upon which it is claimed that the Patent and Trademark Office initial size determination on the concern was in error; and the facts and arguments supporting the concern's claimed status as a small business concern under this section.

2. Section 1.27 is amended by adding a new paragraph (c) to read as follows:

§Statement of status as small entity.

* * * * *

(c) Any verified statement filed pursuant to paragraph (a) of this section on behalf of a small business concern must (1) be signed by the owner or an official of the small business concern empowered to act on behalf of the concern; (2) aver that the concern qualifies as a small business concern as defined in §1.9(d); and (3) aver that exclusive rights to the invention have been conveyed to and remain with the small business concern, or if the rights are not exclusive, that all other rights belong to small entities as defined in §1.9. Where the rights of the small business concern as a small entity are not exclusive, a verified statement must also be filed by the other small entities having rights averring to their status as such.

GERALD J. MOSSINGHOFF,
Sept. 23, 1982. *Commissioner of Patents and Trademarks.*

[FR Doc.82-26941 Filed 9-29-82; 8:45 am]
BILLING CODE 3610-16-M

SMALL BUSINESS ADMINISTRATION

13 CFR Part 121

Definition of Small Business for Paying Reduced Patent Fees Under Title 35, United States Code

Agency: Small Business Administration.

Action: Final rule.

Summary: The Small Business Administration in conjunction with the Patent and Trademark Office is establishing a definition of small business for the purpose of paying patent fees under section 41 (a) and (b) of Title 35, United States Code, which are reduced by 50 per centum for small business concerns as required by Pub. L. 97-247. The definition would be implemented by the Patent and Trademark Office, which has recently published its regulations on the fee reduction procedures (47 FR 40134, Sept. 10, 1982).

Effective Date: Oct. 1, 1982.

For Further Information Contact:
R. Franklin Burnett (703) 557-3054.
Harvey Bronstein (202) 653-6373.

Supplementary Information: Pub. L. 97-247 provides that funds available under the Act to the Patent and Trademark Office "shall be used to reduce by 50 per centum the payment of fees under Section 41 (a) and (b) of Title 35, United States Code, by small business concerns as defined in Section 3 of the Small Business Act and by regulations established by the Small Business Administration."

A notice of proposed rulemaking relating to the definition of a small business was published in the **Federal Register** on Aug. 31, 1982 (47 FR 38331). The regulation being issued is the same as that which was proposed. In order to be a small business, the number of employees of the concern, including those of its affiliates, may not exceed 500 persons. Concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both. The number of employees of a business concern is determined by counting the number of persons of the concern and its affiliates employed on a full-time, part-time or temporary basis during the previous fiscal year of the concern and of its affiliates. The number of employees is the average over the fiscal year of the persons employed during each of the pay periods of the fiscal year.

The definition also requires a small business for this purpose to be one "which has not assigned, granted, conveyed, or licensed, and is under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who could not be classified as an independent inventor if that person had made the invention, or to any concern which would not qualify as a small business concern or a nonprofit organization under this section."

Discussion of Comments

One comment from the American Patent Law Association, whose membership includes several thousand lawyers involved in the practice of law before the U.S. Patent and Trademark Office, expressed "no comment regarding the definition" and expressed "[t]hanks for all that's been done toward a hopefully workable definition." The remaining comments were from individual patent attorneys rather than comments on behalf of any organization.

Two comments raised questions about the intended scope of the term "license." It was suggested that clarification is needed as to what is included within the scope of the term. One comment susggested that, "[a]t the very least, the record should reflect that the definition is not intended to reach implied licenses to use and resell patented articles purchased from a small business." The comment is correct insofar as it suggests that such "implied licenses" are not intended to be included within the scope of the term. Likewise, an order by the applicant to a firm to build a proto-type machine or product for the applicant's own use is not considered to constitute a license for purposes of the definition.

Another suggestion was that the regulation be reworded to deny small business status where revenue above a certain dollar amount was received from licensing rights under the invention to a concern which could not qualify as a small entity. It was also suggested that the term "exclusive license of any of the rights in the invention" be used instead of the term "license." The latter two suggestions have not been adopted. Adoption of these suggestions would cause the regulation to become more complicated, and does not appear necessary to aid small concerns in accord with the purposes of the legislation. In addition, it could substantially broaden the number of concerns which could qualify with a resulting excessive loss of revenue to the Patent and Trademark Office. It is not seen likely that the restriction on licensing would unduly or adversely affect the ability of the small business concern to participate in the patent system.

Another comment which was made related to a firm which is a subsidiary of a university or other nonprofit organization. The suggestion was made that the number of employees of the university or other nonprofit affiliate be excluded from consideration in determining whether or not the business concern qualifies as a small business concern. The suggestion has not been adopted since the situation raised is already treated under the definition of nonprofit organization established by the Patent and Trademark Office on Sept. 10, 1982, at 47 FR 40134-40140. Under that Patent and Trademark Office regulation, a wholly owned subsidiary of a nonprofit or university is considered a part of the university or nonprofit and thus is already eligible for the fee reduction.

One comment suggested that the regulation contain language specifying that concerns meeting its requirements are also independently owned and operated and

not dominant in their field of operation under the Small Business Act. It is not necessary to include this language since this regulation already contains an affiliation test for this purpose; and it is generally unlikely that a small concern would be found to be dominant. The legislative history of the Small Business Act indicates that "The mere fact that a small business makes a particular product or item and is dominant in its field with respect to the particular product or item is not intended to disqualify it from the benefits of this Act * * * "(House Report 494, 83rd Congress, 1st Session 1953). SBA Size Appeals Board precedents have consistently stated that dominance under the Act and the SBA regulations is not viewed in narrow industry subdivisions. It, therefore, does not appear that concerns defined as small business under this provision would be dominant within the meaning of the Small Business Act.

Another comment suggested that foreign concerns should not be eligible as small business under this provision. Since this patent legislation was enacted by the Congress with knowledge of the Paris Convention for the Protection of Industrial Property, there is no indication that Congress intended that foreign small business not be eligible for the fee reduction. It is the view of the Patent and Trademark Office that excluding foreign small concerns would violate U.S. treaties in the patent area.

This comment also questioned whether the Patent and Trademark Office should make initial size determinations, or whether they could more appropriately be made by SBA. Since the fee reduction procedure is part of the patent application and of other Patent and Trademark Office actions and may involve Patent law questions, it would be administratively infeasible to have initial size determinations made by the SBA. The Patent and Trademark Office recently issued regulations (Sept. 10, 1982, 47 FR 40134) which set forth the fee reduction procedures.

Other Considerations Relating to the Rulemaking

Environmental, energy, and other considerations: The rule will not have a significant impact on the quality of the human environment or the conservation of energy resources.

Small business concerns will be benefited by the rule. The proposed rule will not have a significant economic impact on a substantial number of small entities (Regulatory Flexibility Act, Pub. L. 96–354). Public Law 97–247 has taken into consideration the impact it may have on small entities and has reduced the fees, therefore, by 50 per centum.

The Small Business Administration has determined that this rule is not a major rule under Executive Order 12291. The annual effect on the economy will be less than $100 million. There will be no major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. There will be no significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

This rule will not impose a burden under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*, since no significant additional record keeping or reporting requirements are placed upon the public.

List of Subjects in 13 CFR Part 121

Small businesses, Inventions and patents.

PART 121—SMALL BUSINESS SIZE STANDARDS

Accordingly, pursuant to Section 3 of the Small Business Act and Pub. L. 97–247, Part 121 of Title 13 of the Code of Federal Regulations is amended by adding §121.3–18 to read as follows:

§121.3–18 Definition of small business for paying reduced patent fees under Title 35, U.S. Code.

(a) Pursuant to Pub. L. 97–247, a small business concern for purposes of paying reduced fees under 35 U.S. Code 41 (a) and (b) to the Patent and Trademark Office means any business concern (1) whose number of employees, including those of its affiliates, does not exceed 500 persons and (2) which has not assigned, granted, conveyed, or licensed, and is under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor if that person had made the invention, or to any concern which would not qualify as a small business concern or a nonprofit organization under this section. For the purpose of this section concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both. The number of employees of the business concern is the average over the fiscal year of the persons employed during each of the pay periods of the fiscal year. Employees are those persons employed on a full-time, part-time or temporary basis during the previous fiscal year of the concern.

(b) If the Patent and Trademark Office determines that a concern is not eligible as a small business concern within this section, the concern shall have a right to appeal that determination to the Small Business Administration. The Patent and Trademark Office shall transmit its written decision and the pertinent size determination file to the SBA in the event of such adverse determination and size appeal. Such appeals by concerns should be submitted to the SBA at 1441 L Street, NW., Washington, D.C. 20416 (Attention: SBA Office of General Counsel). The appeal should state the basis upon which it is claimed that the Patent and Trademark Office initial size determination on the concern was in error and the facts and arguments supporting the concern's claimed status as a small business concern under this section.

ROBERT B. WEBBER,
Sept. 23, 1982. *Acting Administrator.*

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[1023 O.G. 23]

(42)

Department of Commerce
Patent and Trademark Office
37 CFR Part 1
[Docket No. 30725–143]
Proposed Revision of Patent Practice

Agency: Patent and Trademark Office, Commerce

Action: Notice of proposed rulemaking.

Summary: The Patent and Trademark Office proposes to amend the rules of practice in patent cases, Part 1 of 37 CFR, to clarify the practice under certain sections of Public Law 97–247 of 1982 and to make certain other changes and clarifications in practice which have been found desirable after some experience. The changes proposed would change the practice under §§1.27 and 1.28 with regard to subsequently establishing small entity status and qualifying for a refund of fees paid in full. The proposed changes in other rules are intended to clarify and improve the practice in certain areas.

Dates: Comments must be submitted on or before Oct. 18, 1983; a public hearing will be held on Oct. 18, 1983, 9:30 a.m.; requests to present oral testimony should be received on or before Oct. 11, 1983.

Address: Address written comments and requests to present oral testimony to the Commissioner of Patents and Trademarks, Washington, D.C. 20231, Attention: R. Franklin Burnett, Room 3–11A13. The hearing will be held in Room 6–1215, on the 12th floor of Bldg. 6, Crystal Plz., located at 2221 Jefferson Davis Hwy., Arlington, Va. Written comments and a transcript of the public hearing will be available for public inspection in Room 11A13 of Bldg. 3, Crystal Plz. at 2021 Jefferson Davis Hwy., Arlington, Va.

For Further Information Contact: R. Franklin Burnett by telephone at (703) 557-3054 or by mail marked to his attention and addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Supplementary Information: This proposed rule change is designed primarily to 1) clarify the small entity status of independent inventors, small business concerns and nonprofit organizations having funding agreements with a federal governmental agency as defined in 35 U.S.C. 202(c)(4); 2) rewrite §1.28 to provide a system for obtaining a refund of a portion of a fee paid in full when small entity status is established within two months of the date of such payment; 3) provide that a separate statement establishing small entity status is not required in an application filed under §1.62 when such status has been established in the parent application; and 4) modify certain other rules to clarify practice.

Proposed new §1.21(1) would establish a fee for processing and retaining any application which is abandoned for failing to complete the application pursuant to §1.53(d). This proposed new paragraph, as well as the proposed changes to §§1.53 and 1.78, would indicate that in order to obtain benefit of a prior U.S. application, either the basic filing fee or the processing and retention fee of §1.21(1) must be paid. Proposed §1.53(d) would further establish that the application will be disposed of if the required fee is not paid within a set period. Proposed §1.56(b) would require submission of copies of foreign patent documents, non-patent publications, or other non-patent items of information disclosed pursuant to the duty to disclose. Proposed new §1.191(d) would clarify that §§1.136 or 1.550(c) apply to all time periods set forth in §§1.191–1.194, 1.196 and 1.197.

Discussion of Specific Rules:

Section 1.5, paragraph (a), if amended as proposed, would remove a reference to §1.55, which is no longer appropriate.

Section 1.6, if amended as proposed, would clarify the manner in which letters and papers which are filed in accordance with §1.10 by "Express Mail" are date stamped when received in the Patent and Trademark Office. Such letters and papers, which comply with §1.10, will be stamped with the date of deposit as "Express Mail" with the United States Postal Service unless the date of deposit is a Saturday, Sunday or federal holiday within the District of Columbia, in which case the date stamped will be the next succeeding day which is not a Saturday, Sunday, or a federal holiday within the District of Columbia. No papers are received in the Patent and Trademark Office on Saturdays, Sundays, or federal holidays within the District of Columbia.

Section 1.14, if amended as proposed, would revise paragraph (b) to clarify that only complete patent applications as defined in §1.51(a) which become abandoned will be retained for a period of twenty years from the filing date. Incomplete applications will be retained as provided in proposed §§1.21 and 1.53.

Section 1.19, paragraph (b)(3), if amended as proposed, would clarify that only copies made from Office records, but not prepared by the Office, will be compared with the original prior to certification of the copies. The Office will not compare copies made from some other copy or record with Office records for purposes of certification. The stated charge of ten cents per page would not be sufficient to make a word-by-word comparison. The requirements of the public appear to still be served by limiting the use of the comparison fee to Office records.

Section 1.21, if amended as proposed, would revise paragraph (b) (2) and establish a new paragraph (1). The change in paragraph (b) (2) is in accord with the proposed change in §1.25(a). Proposed new paragraph (1) provides a fee for processing and retaining any application which is abandoned pursuant to §1.53(d). Such applications have received a filing date pursuant to 35 U.S.C. 111 but have been abandoned for failure to complete the application by filing the oath or declaration, filing fee or surcharge (§1.16(e)). The proposed fee would cover the handling, filming, processing, data input and storage required to retain an application. The proposed fee would not be due in any application in which the basic filing fee was paid.

Section 1.25, if amended as proposed, would revise paragraph (a) to set the minimum deposit for a deposit account at $1000 and to clarify that an amount sufficient to cover all fees as well as services, copies, etc., requested must always be on deposit. This minimum amount is considered necessary and proper in view of the substantial increase in the amounts of fees being charged to deposit accounts and the processing costs of handling these accounts. Proposed paragraph (b) would clarify that fees may be charged against a deposit account only where sufficient funds are on deposit to cover the entire amount of the fees. Proposed paragraph (b) would also clarify that an authorization to charge a fee to a deposit account will not be considered payment on the date the authorization to charge is effective as to that fee unless sufficient funds are present in the account to cover the fee.

Section 1.27, if amended as proposed, would revise paragraphs (b), (c) and (d) to provide clearly that an independent inventor, small business concern, or nonprofit organization, which is otherwise qualified as a small entity for purposes of paying reduced patent fees under 37 CFR 1.9 and 1.27, is not disqualified therefrom because of a license to a federal agency pursuant to 35 U.S.C. 202(c) (4). Section 1.27 is proposed to be amended to state that such a license does not constitute a license or a conveyance of rights which would preclude qualifying for small entity status. The amendment is necessary for clarification and to avoid frustrating the intent of Public Law 97–247 and Public Law 96–517 when taken together.

The text of title 35, United States Code, §202(c) (4) reads as follows:

§202. Disposition of rights

(c) Each funding agreement with a small business firm or nonprofit organization shall contain appropriate provisions to effectuate the following:

* * * * *

(4) With respect to any invention in which the contractor elects rights, the Federal agency shall have an nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States any subject invention throughout the world, and may, if provided in the funding agreement, have additional rights to sublicense any foreign government or international organization pursuant to any existing or future treaty or agreement.

Section 1.28, if amended as proposed, would revise paragraph (a) to clarify that a separate verified statement is not required to be filed in a file wrapper continuing application filed pursuant to §1.62, if status as a small entity has been established in the parent application and is still proper. Proposed §1.28(a) would also permit a refund of a fee timely paid in the full amount if within two months of the date of the full timely payment: (1) small entity status is properly established, and (2) a refund is requested. Under proposed §1.28(a), no request for a refund filed later than two months after the date on which a full fee has been paid will be entertained. Proposed §1.28(a) would provide for, in somewhat modified form, the practice presently in effect pursuant to a waiver of §1.28 published at 1023 O.G. 77 on Oct. 26, 1982 and extended at 1027 O.G. 115 on Feb. 15, 1983.

The revised refund procedures in proposed §1.28(a) would apply to any fees timely paid in full on or after the effective date of the final rule. The refund procedures set forth in the Patent and Trademark Office *Official Gazette* Notice entitled "Filing of Verified Statements Claiming Small Entity Status" published at 1023 O.G. 77 on Oct. 26, 1982, and the *Official Gazette* Notice entitled "Requirements for Filing Verified Statements Claiming Small Entity Status" published at 1027 O.G. 115 on Feb. 15, 1983, continue in effect until the effective date of the final rule or until other action is taken.

Section 1.52(d), if amended as proposed, would clarify that the verified English translation of a non-English language application and the fee set forth in §1.17(k) can

be filed with the application or within such time as may be set by the Office.

Section 1.53, paragraphs (b) and (d), if amended as proposed, would clarify in paragraph (b) that the application for patent must be filed in the name of the actual inventor or inventors by giving all their names as required by §1.41. Proposed paragraph 1.53(d) would state that if a correspondence address is provided, notice would be provided where the appropriate filing fee or oath or declaration do not accompany the application. Proposed paragraph 1.53(d) would also provide that if the required filing fee is not paid, or the processing and retention fee is not paid, within one year of the date of mailing of notification pursuant to proposed paragraph 1.53(d), the application will be disposed of. The proposed paragraph wording would further indicate that no copies will be provided or certified by the Office of an application which has been disposed of or in which neither the basic filing fee nor the processing fee has been paid. Finally, proposed paragraph 1.53(d) would specify that if no correspondence address is included in the application, applicant will have two months from the filing date to file the fee, oath or declaration and to pay the surchage set forth in §1.16(e) in order to prevent abandonment of the application.

Section 1.55, paragraph (b), if amended as proposed, would correct an error in referring to paragraph (a) of this section.

Section 1.56, if amended as proposed, would revise paragraph (b) and add a new paragraph (j). Proposed paragraph 1.56(b) would require that a copy of each foreign patent document, non-patent publication, or other non-patent item of information in written form being disclosed pursuant to §1.56 accompany such disclosures. Proposed paragraph 1.56(b) would also add "or her" to refer to both genders. Proposed new paragraph 1.56(j) would state that applicant would be notified if a copy of each foreign patent document, non-patent publication, or other non-patent item of information in written form is not submitted and given a time period within which to file the copy or state that the copy is not in the possession of the person making the disclosure. Such a time period would be extendable under §1.136. Failure to respond in a proper and timely manner would result in abandonment of the application.

Section 1.59, if amended as proposed, would clarify that the Office will furnish copies of papers received in the Office at the usual cost only if the basic filing fee or the processing and retention fee has been paid.

Section 1.60, if amended as proposed, would break the section into paragraph (a) and new paragraph (b). Paragraph (a) would add a reference to proposed amended §1.78(a) to clarify the conditions under which continuation or divisional applications may be filed. Proposed new paragraph 1.60(b) would provide that the signing of the oath or declaration could be omitted if the prior application was complete as set forth in §1.51(a). Proposed new paragrpah 1.60(b) also requires that a true copy of the prior complete application be filed. Proposed paragraph 1.60(b) would also provide that only amendments reducing the number of claims or adding a reference to the prior application will be entered before calculating the filing fee and granting the filing date.

Section 1.62, if amended as proposed, would revise paragraphs (a) and (d). Proposed paragraph 1.62(a) would provide that the file wrapper continuing procedure is applicable only to prior complete applications under §1.51(a). Proposed paragraph 1.62(d) would clarify that the filing fee referred to is the basic filing fee.

Section 1.78, if amended as proposed, would change the title to more explicitly define the contents of the section and proposed paragraph (a). Proposed paragraph 1.78(a) would specify that in order for an application to claim the benefit of a prior filed copending national application, the prior application must be complete as set forth in §1.51(a) or be entitled to a filing date as set forth in §1.53(b) and include the basic filing fee set forth in §1.16, or be entitled to a filing date as set forth in §1.53(b) and have paid the processing and retention fee set forth in §1.21(1) within the time period set forth in §1.53(d).

Section 1.21, if amended as proposed, would revise paragraph (e) to specify how amendments to the description and claims are to be made in reissue applications.

Section 1.123, if amended as proposed, would clarify that the paper requesting amendments to the drawing should be a separate paper.

Section 1.135 is proposed to be amended by removing paragraph (d) since it is not necessary in view of the ability to obtain extensions of time under §1.136(a) by petition and payment of fee.

Section 1.136, if amended as proposed, would clarify in paragraphs (a) and (b) that the extension of time practice under this section does not apply in interference proceedings or in reexamination proceedings. Extension of time practice in interference proceedings, including extension of time for appeal or civil action (§1.304), is subject to §1.245. Extension of time practice in reexamination proceedings, including extension of time for appeal or civil action (§1.304), is subject to §1.550(c).

Section 1.191, if amended as proposed, would add a new paragraph (d) to provide that the time periods for appeal and review set forth in §§1.191–1.194, 1.196 and 1.197 are subject to the provisions of §1.136 for patent applications or §1.550(c) for reexamination proceedings.

Section 1.192, if amended as proposed, would revised paragraph (a) to delete the reference to §1.136 since it is provided for in proposed new §1.191(d). Section 1.197, if amended as proposed, would revise paragraph (b) to delete the reference to §1.136 since it is provided for in proposed new §1.191(d).

Section 1.304, if amended as proposed, would clarify that extensions of time periods set forth therein are subject to the provisions of §1.245 for interferences or §1.550(c) where reexamination proceedings are involved rather than to §1.136 which applies in all other cases.

Section 1.550, if amended as proposed, would revise paragraph (c) to clarify that the time for taking any action, including appeal, by a patent owner in a reexamination proceeding is governed solely by this section.

Section 1.555, if amended as proposed, would revise paragraphs (a) and (b). Proposed paragraph 1.555(a) would change "prior art" statement to —information disclosure— statement to conform to the language of §1.98. Proposed paragraph 1.555(b) would require that disclosures pursuant to this paragraph be accompanied by a copy of each foreign patent document or non-patent printed publication which is being disclosed and which is in the possession of the person making the disclosure.

Environmental, energy, and other considerations: The proposed rule change will not have a significant impact on the quality of the human environment or the conservation of energy resources.

The proposed rule change is in conformity with the requirements of the Regulatory Flexibility Act (Pub. L. 96–354), Executive Order 12291, and the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et. seq.*

The rule change will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act. Pub. L. 96–354). Public Laws 96–517 and 97–247 have both taken into consideration the impact they may have on small entities.

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291. The annual effect on the economy will be less than $100 million. There will be no major increase in costs or prices for consumers, individual industries, federal, state, or local government agencies, or geographic regions. There will be no significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

This rule change will not impose a burden under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et.*

seq., since no significant additional record keeping or reporting requirements are placed upon the public. In fact, some paperwork, especially that related to filing of small entity statements in applications filed under §1.62 will be reduced.

List of Subjects in 37 CFR Part 1

Administrative practice and procedure, Authority delegations, Conflict of interests, Courts, Inventions and patents, Lawyers.

Notice is hereby given that, pursuant to the authority granted to the Commissioner of Patents and Trademarks by 35 U.S.C. 6 and Public Law 97–247, the Patent and Trademark Office proposes to amend Title 37 of the Code of Federal Regulations as set forth below.

It is proposed to amend 37 CFR, Part 1, as follows with deletions indicated by brackets and additions by arrows.

1. Section 1.5 is proposed to be amended by revising paragraph (a) to read as follows:

§1.5 Identification of application, patent or registration.

(a) When a letter concerns an application for patent, it should state the name of the applicant, the title of the invention, the serial number or international application number of the application, the date of filing the same, and, if known, the group art unit and name of the examiner to which it has been assigned [(see §1.55)].

* * * * *

2. Section 1.6 is proposed to be amended by revising paragraph (a) to read as follows:

§1.6 Receipt of letters and papers.

(a) Letters and other papers received in the Patent and Trademark Office are stamped with the date of receipt►except where such letters and papers are filed in accordance with §1.10. Any such letters and papers filed in accordance with §1.10 will be stamped with the date of deposit as "Express Mail" with the United States Postal Service unless the date of deposit is a Saturday, Sunday, or federal holiday within the District of Columbia in which case the data stamped will be the next succeeding day which is not a Saturday, Sunday, or a federal holiday within the District of Columbia◄. No papers are received in the Patent and Trademark Office on Saturdays, Sundays or federal holidays within the District of Columbia.

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3. Section 1.14 is proposed to be amended by revising paragraph
(b) to read as follows:

§1.14 Patent applications preserved in secrecy.

* * * * *

(b) Except as provided in §1.11(b) abandoned applications are likewise not open to public inspection, except that if an application referred to in a U.S. patent, or in an application which is open to inspection pursuant to §1.139, is abandoned and is available, it may be inspected or copies obtained by any person on written request, without notice to the applicant. [Abandoned] ►Complete◄ applications ►(§1.51(a)) which are abandoned◄ may be destroyed after 20 years from their filing date, except those to which particular attention has been called and which have been marked for preservation. Abandoned applications will not be returned.

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4. Section 1.19 is proposed to be amended by revising paragraph (b) (3) to read as follows:

§1.19 Document supply fees.

* * * * *

(b) * * * * *

(3) For comparing copies ►, made from Patent and Trademark Office records but◄ not prepared by the ►Patent and Trademark◄ Office ►, ◄ with the original, prior to certification of the copies, per page . . . . . \$ 0.10

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5. Section 1.21 is proposed to be amended by revising paragraph (b) (2) and by adding a new paragraph (1) to read as follows:

§1.21 Miscellaneous fees and charges.

* * * * *

(b) * * * * *

(2) Service charge for each month when the balance at the end of the month is below [\$40] ►\$1000◄ . . . . . \$ 2.00

* * * * *

►(1) For processing and retaining any application abandoned pursuant to §1.53(d) unless the required basic filing fee has been paid . . . . . \$100.00.◄

6. Section 1.25 is proposed to be revised to read as follows:

§1.25 Deposit accounts.

(a) For the convenience of attorneys, agents, and the general public in paying any fees due, in ordering services offered by the Office, copies of records, etc., deposit accounts may be established in the Patent and Trademark Office upon payment of the fee for establishing a deposit account (§1.21(b) (1)). A minimum deposit of [\$50] ►\$1000◄ or more, depending on the activity of the individual account, is required. At the close of each month's business, a statement will be rendered. A remittance must be made promptly upon receipt of the statement to cover the value of items or services charged to the account and thus restore the accoount to its established normal deposit value. An amount sufficient to cover all ►fees,◄ services, copies, etc., requested must always be on deposit. A service charge (§1.21(b) (2)) will be assessed for each month that the balance at the end of the month is below \$[40] ►1000◄ .

(b) Filing, issue, appeal, international-type search report, international application processing, petition, and post-issuance fees may be charged against these accounts ►if sufficient funds are on deposit to cover such fees◄. A general authorization to charge all fees, or only certain fees, set forth in §§1.16 to 1.18 to a deposit account►containing sufficient funds◄ may be filed in an individual application, either for the entire pendency of the application or with respect to a particular paper filed. An authorization to charge to a deposit account the fee for a request for reexamination pursuant to §1.510 and any other fees required in a reexamination proceeding in a patent may also be filed with the request for reexamination. ►An authorization to charge a fee to a deposit account will not be considered payment of the fee on the date the authorization to charge the fee is effective as to the particular fee to be charged unless sufficient funds are present in the account to cover the fee.◄

7. Section 1.27 is proposed to be amended by revising paragraphs (b), (c) and (d) to read as follows:

§1.27 Statement of status as small entity.

* * * * *

(b) Any verified statement filed pursuant to paragraph (a) of this section on behalf of an independent inventor must be signed by the independent inventor except as provided in §§1.42, 1.43, or 1.47 of this part, and must aver that the inventor qualifies as an independent inventor in accordance with §1.9(c) of this part. Where there are joint inventors in an application, each inventor must file a verified statement establishing status as an independent inventor in order to qualify as a small entity.

Where any rights have been assigned, granted, conveyed, or licensed, or there is an obligation to assign, grant, convey, or license, any rights to a small business concern, a nonprofit organization, or any other individual, a verified statement must be filed by the individual, the owner of the small business concern, or an official of the small business concern or nonprofit organization empowered to act on behalf of the small business concern or nonprofit organization averring to their status. ►For purposes of a verified statement under this para-

graph, a license to a federal agency resulting from a funding agreement with that agency pursuant to 35 U.S.C. 202(c) (4) does not constitute a license as set forth in §1.9 of this part.◄

(c) Any verified statement filed pursuant to paragraph (a) of this section on behalf of a small business concern must (1) be signed by the owner or an official of the small business concern empowered to act on behalf of the concern; (2) aver that the concern qualifies as a small business concern as defined in §1.9(d); and (3) aver that exclusive rights to the invention have been conveyed to and remain with the small business concern, or if the rights are not exclusive, that all other rights belong to small entities as defined in §1.9. Where the rights of the small business concern as a small entity are not exclusive, a verified statement must also be filed by the other small entities having rights averring to their status as such. ►For purposes of a verified statement under this paragraph, a license to a federal agency resulting from a funding agreement with that agency pursuant to 35 U.S.C. 202(c) (4) does not constitute a license as set forth in §1.9 of this part.►

(d) Any verified statement filed pursuant to paragraph (a) of this section on behalf of a nonprofit organization must (1) be signed by an official of the nonprofit organization empowered to act on behalf of the organization; (2) aver that the organization qualifies as a nonprofit organization as defined in §1.9(e) of this part specifying under which one of §1.9(e) (1), (e) (2), (e) (3), or (e) (4) of this part the organization qualifies; and (3) aver that exclusive rights to the invention have been conveyed to and remain with the organization or if the rights are not exclusive, that all other rights belong to small entities as defined in §1.9 of this part. Where the rights of the nonprofit organization as a small entity are not exclusive a verified statement must also be filed by the other small entities having rights averring to their status as such. ►For purposes of a verified statement under this paragraph, a license to a federal agency resulting from a funding agreement with that agency pursuant to 35 U.S.C. 202(c) (4) does not constitute a conveyance of rights as set forth in this paragraph.◄

8. Section 1.28 is proposed to be amended by revising paragraph (a) to read as follows:

§1.28 Effect on fees of failure to establish status, or change status, as a small entity.

(a) The failure to establish status as a small entity (§§ 1.9(f) and 1.27 of this part) in any application or patent prior to paying, or at the time of paying, any fee [(1)] precludes payment of the fee in the amount established for small entities [; and (2) precludes a refund pursuant to §1.26 of this part of any portions of fees paid prior to establishing status as a small entity]. ►A refund pursuant to §1.26 of this part, based on establishment of small entity status, of a portion of fees timely paid in full prior to establishing status as a small entity may only be obtained if a verified statement under §1.27 and a request for a refund of the excess amount are filed within two months of the date of the timely payment of the full fee.◄ Status as a small entity is waived for any fee by the failure to establish the status prior to paying, [or] at the time of paying ►, or within two months of the date of payment of,◄ the fee. Status as a small entity must be specifically established by a verified statement filed in each application or patent in which the status is available and desired, except those applications filed under §1.60 ►or §1.62◄ of this part where the status as a small entity has been established in a parent application and is still proper. Once status as a small entity has been established in an application or patent, the status remains in that application or patent without the filing of a further verified statement pursuant to §1.27 of this part unless the Office is notified of a change in status. Status as a small entity in one application or patent does not affect any other application or patent, including applications or patents which are directly or indirectly dependent upon the application or patent in which the status has been established, except those filed under §1.60 ►or §1.62◄ of this part. Applications filed under §1.60 ►or §1.62◄ of this part must include a reference to a verified statement in a parent application if status as a small entity is still proper and desired.

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9. Section 1.52 is proposed to be amended by revising paragraph (d) to read as follows:

§1.52 Language, paper, writing, margins.

* * * * *

(d) An application [including a signed oath or declaration] may be filed in a language other than English [if it is accompanied by the fee set forth in §1.17(k)]. A verified English translation of the non-English language application[is] ►and the fee set forth in §1.17(k) are◄ required to be filed with the application or within such time as may be set by the Office.

10. Section 1.53 is proposed to be amended by revising paragraphs (b) and (d) to read as follows:

§1.53 Serial number, filing date, and completion of application.

* * * * *

(b) The filing date of an application for patent is the date on which (1) a specification containing a description pursuant to §1.71 and at least one claim pursuant to §1.75, and (2) any drawing required by §1.81(a), are filed in the Patent and Trademark Office ►in the name of the actual inventor or inventors as required by §1.41◄. No new matter may be introduced into an application after its filing date (§1.118).

* * * * *

(d) If an application which has been accorded a filing date pursuant to paragraph (b) of this section does not include the appropriate filing fee or an oath or declaration by the applicant, applicant will be so notified ►, if a correspondence address has been provided,◄ and given a period of time within which to file the fee, oath, or declaration and to pay the surcharge as set forth in § 1.16(e) in order to prevent abandonment of the application.►If the required filing fee is not timely paid, or if the processing and retention fee set forth in §1.21(l) is not paid within one year of the date of mailing of the notification required by this paragraph, the application will be disposed of. No copies will be provided or certified by the Office of an application which has been disposed of or in which neither the required basic filing fee nor the processing and retention fee has been paid.◄ The notification pursuant to this paragraph may be made simultaneously with any notification pursuant to paragraph (c) of this section. ►If no correspondence address is included in the application, applicant has two months from the filing date to file the fee, oath or declaration and to pay the surcharge as set forth in §1.16(e) in order to prevent abandonment of the application.◄

* * * * *

11. Section 1.55 is proposed to be amended by revising paragraph (b) to read as follows:

§1.55 Claim for foreign priority.

* * * * *

(b) An applicant may under certain circumstances claim priority on the basis of an application for an inventor's certificate in a country granting both inventor's certificates and patents. When an applicant wishes to claim the right of priority as to a claim or claims of the application on the basis of an application for an inventor's certificate in such a country under 35 U.S.C. 119, last paragraph (as amended July 28, 1972), the applicant or his ►or her◄ attorney or agent, when submitting a claim for such right as specified in paragraph ►(a)◄ [(b)]of this section, shall include an affidavit or declaration including a specific statement that, upon an investigation, he or she has satisfied himself or herself that to the best of his or her knowledge the applicant, when fil-

ing his or her application for the inventor's certificate, had the option to file an application either for a patent or an inventor's certificate as to the subject matter of the identified claim or claims forming the basis for the claim of priority.

12. Section 1.56 is proposed to be amended by revising paragraph (b) and by adding a new paragraph (j) to read as follows:

§1.56 Duty of disclosure; fraud; striking or rejection of applications.

* * * * *

(b) Disclosures pursuant to this section ►must be accompanied by a copy of each foreign patent document, non-patent publication, or other non-patent item of information in written form which is being disclosed and◄ may be made to the Office through an attorney or agent having responsibility for the preparation or prosecution of the application or through an inventor who is acting in his ►or her◄ own behalf. Disclosure to such an attorney, agent or inventor shall satisfy the duty, with respect to the information disclosed, of any other individual. Such an attorney, agent or inventor has no duty to transmit information which is not material to the examination of the application.

* * * * *

►(j) If any disclosure pursuant to this section does not include a copy of each foreign patent document, non-patent publication, or other non-patent item of information in written form which is being disclosed, applicant will be so notified and given a period of time within which to file the copy or state that the copy is not in the possession of the person making the disclosure. The time period set may be extended under §1.136.◄

13. Section 1.59 is proposed to be revised to read as follows:

§1.59 Papers of application with filing date not to be returned.

Papers in an application which has received a filing date pursuant to §1.53 will not be returned for any purpose whatever. If applicants have not preserved copies of the papers, the Office will furnish copies at the usual cost ►of any application in which either the required basic filing fee (§1.16) or the processing and retention fee (§1.21(1)) has been paid◄.

14. Section 1.60 is proposed to be revised to read as follows:

§1.60 Continuation or divisional application for invention disclosed in a prior application.

►(a)◄ A continuation or divisional application (filed under the conditions specified in 35 U.S.C. 120 or 121 ►and §1.78(a)◄), which discloses and claims only subject matter disclosed in a prior application may be filed as a separate application before the patenting or abandonment or of termination of proceedings on the prior application. [Signing and execution of the application papers by the applicant may be omitted provided the copy is supplied by and accompanied by a statement by, the applicant or his or her attorney or agent that the application papers comprise a true copy of the prior application as filed. Such statement must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office. Only amendments reducing the number of claims or adding a reference to the prior application (§1.78(a)) will be entered before calculating the filing fee and granting the filing date.]

►(b) An applicant may omit signing of the oath or declaration in a continuation or divisional application if (1) the prior application was a complete application as set forth in §1.51(a) and (2) applicant files a true copy of the prior complete application as filed including the specification (including claims), drawing, oath or declaration, and any amendments referred to in the oath or declaration filed to complete the prior application. The copy of the prior application must be accompanied by a statement that the application papers filed are a true copy of the prior application and that no amendments referred to in the oath or declaration filed to complete the prior application introduced new matter therein. Such statement must be by the applicant or applicant's attorney or agent and must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office. Only amendments reducing the number of claims or adding a reference to the prior application (§1.78(a)) will be entered before calculating the filing fee and granting the filing date.◄

15. Section 1.62 is proposed to be amended by revising paragraphs (a) and (d) to read as follows:

§1.62 File wrapper continuing procedure.

(a) A continuation, continuation-in-part, or divisional application, which uses the specification ►,◄ [and] drawings ►and oath or declaration◄ from a prior ►complete◄ application ►(§1.51(a))◄ to be abandoned, may be filed before the payment of the issue fee, abandonment of, or termination of proceedings on [a] ►the◄ prior application. The filing date of an application filed under this section is the date on which a request is filed for an application under this section including identification of the Serial Number, filing date, and applicant's name of the prior ►complete◄ application.

* * * * *

(d) If an application which has been accorded a filing date pursuant to paragraph (a) of this section does not include the appropriate ►basic◄ filing fee pursuant to paragraph (b) of this section, or an oath or declaration by the applicant in the case of a continuation-in-part application pursuant to paragraph (c) of this section, applicant will be so notified and given a period of time within which to file the fee, oath, or declaration and to pay the surcharge as set forth in §1.16(e) in order to prevent abandonment of the application. The notification pursuant to this paragraph may be made simultaneously with any notification of a defect pursuant to paragraph (a) of this section.

* * * * *

16. Section 1.78 is proposed to be amended by revising the title and paragraph (a) to read as follows:

§1.78 ►Claiming benefit of earlier filing date and cross-references◄ [Cross-references] to other applications.

[When an applicant files an] ►An◄ application ►may claim◄ [claiming] an invention disclosed in ►the same applicant's◄ [a] prior filed copending national application or international application designating the United States of America [of the same applicant,] ►. In order for an application to claim the benefit of a prior filed copending national application, the prior application must be (1) complete as set forth in §1.51, or (2) entitled to a filing date as set forth in §1.53(b) and include the basic filing fee set forth in §1.16; or (3) entitled to a filing date as set forth in §1.53(b) and have paid therein the processing and retention fee set forth in §1.21(1) within the time period set forth in §1.53(d). Any application claiming the benefit of a prior filed copending national or international application◄ [the second application] must contain or be amended to contain in the first sentence of the specification following the title a reference to such prior application, identifying it by a serial number and filing date or international application number and international filing date and indicating the relationship of the applications [, if the benefit of the filing date of such prior application is to be claimed]. Cross-references to other related applications may be made when appropriate. (See §1.14(b)).

* * * * *

17. Section 1.121 is proposed to be amended by revising paragraph (e) to read as follows:

§1.121 Manner of making amendments.

* * * * *

(e) In reissue applications, both the descriptive portion and the claims are to be amended [as specified in para-

graph (a) of this section.] ►by either (1) submitting a copy of a portion of the description or an entire claim with all matter to be deleted from the patent being placed between brackets and all matter to be added to the patent being underlined, or (2) indicating the exact word or words to be stricken out or inserted and the precise point where the deletion or insertion is to be made. Any word or words to be inserted must be underlined. See §1.173.◄

* * * * *

18. Section 1.123 is proposed to be revised to read as follows:

§1.123 Amendments to the drawing.

No change in the drawing may be made except by permission of the Office. Permissible changes in the construction shown in any drawing may be made only by bonded draftsmen, at applicant's expense, or by the submission of substitute drawings by applicant. A sketch in permanent ink showing proposed changes, to become part of the record, must be filed for approval by the examiner[. The paper requesting amendments to the drawing] ►and◄ should be ►a◄ separate ►paper◄ [from other papers].

19. Section 1.135 is proposed to be amended by removing paragraph (d).

§1.135 Abandonment for failure to respond within time period.

* * * * *

[(d) Prompt ratification or filing of a correctly signed copy may be accepted in case of an unsigned or improperly signed paper. (See §1.7.)]

20. Section 1.136 is proposed to be revised to read as follows:

§1.136 Filing of timely responses with petition and fee for extension of time and extensions of time for cause.

(a) If an applicant is required to respond within a nonstatutory or shortened statutory time period, applicant may respond up to four months after the time period set if a petition for an extension of time and the fee set in §1.17 are filed prior to or with the response, unless (1) applicant is notified otherwise in an Office action or (2) the application is involved in an interference declared pursuant to §1.207. The date on which the response, the petition, and the fee have been filed is the date of the response and also the date for purposes of determining the period of extension and the corresponding amount of the fee. The expiration of the time period is determined by the amount of the fee paid. In no case may an applicant respond later than the maximum time period set by statute, or be granted an extension of time under paragraph (b) of this section when the provisions of this paragraph are available. ► See §1.245 for extension of time in interference proceedings and §1.550(c) for extension of time in reexamination proceedings.◄

(brence proceedings and §1.550(c) for extension of time in rpursuant to paragraph (a) of this section, the time for response will be extended only for sufficient cause, and for a reasonable time specified. Any request for such extension must be filed on or before the day on which action by the applicant is due, but in no case will the mere filing of the request effect any extension. In no case can any extension carry the date on which response to an Office action is due beyond the maximum time period set by statute or be granted when the provisions of paragraph (a) of this section are available. See §1.245 for extension of time in interference proceedings ►and § 1.550(c) for extension of time in reexamination proceedings◄ .

21. Section 1.191 is proposed to be amended by adding a new paragraph (d) to read as follows:

§1.191 Appeal to Board of Appeals.

* * * * *

►(d) The time periods set forth in §§1.191 through 1.194, 1.196 and 1.197 are subject to the provisions of §1.136 for patent applications or §1.550(c) for reexamination proceedings.◄

22. Section 1.192 is proposed to be amended by revising paragraph (a) to read as follows:

§1.192 Appellant's brief.

(a) The appellant shall, within 2 months from the date of the notice of appeal under §1.191 in an application, reissue application, or patent under reexamination, or within the time allowed for response to the action appealed from if such time is later, file a brief in triplicate. The brief must be accompanied by the requisite fee set forth in §1.17(f) and must set forth the authorities and arguments on which the appellant will rely to maintain the appeal. The brief must include a concise explanation of the invention which should refer to the drawing by reference characters, and a copy of the claims involved. [The time periods set forth herein are subject to the provisions of §1.136.]

* * * * *

23. Section 1.197 is proposed to be amended by revising paragraph (b) to read as follows:

§1.197 Action following decision.

* * * * *

(b) A single request for rehearing or reconsideration, or modification of the decision, may be made if filed within thirty days from the date of the original decision, unless that decision is so modified as to become, in effect, a new decision, and the Board of Appeals so states. [Such time may be extended under the provisions of §1.136.]

* * * * *

24. Section 1.304 is proposed to be amended by revising paragraph (a) to read as follows:

§1.304 Time for appeal or civil action.

(a) The time for filing the notice and reasons of appeal to the U.S Court of Appeals for the Federal Circuit (§1.302) or for commencing a civil action (§1.303) is sixty days from the date of the decision of the Board of Appeals or the Board of Patent Interferences. If a request for rehearing or reconsideration, or modification of the decision, is filed within the time provided pursuant to §1.197(b) or §1.256(b), the time for filing an appeal or commencing a civil action shall expire at the end of the sixty-day period or thirty days after action on the request, whichever is later. The time periods set forth herein are subject to the provisions of §1.136 ►or §1.550(c) as to decisions of the Board of Appeals, or §1.245 as to decisions of the Board of Patent Interferences◄.

* * * * *

25. Section 1.550 is proposed to be amended by revising paragraph (c) to read as follows:

§1.550 Conduct of reexamination proceedings.

* * * * *

(c) The time for ►taking any action by a patent owner in a reexamination proceeding◄ [reply set in paragraph (b) of this section] will be extended only for sufficient cause, and for a reasonable time specified. Any request for such extension must be filed on or before the day on which action by the patent owner is due, but in no case will the mere filing of the request effect any extension.

* * * * *

26. Section 1.555 is proposed to be amended by revising paragraphs (a) and (b) to read as follows:

§1.555 Duty of disclosure in reexamination proceedings.

(a) A duty of candor and good faith toward the Patent and Trademark Office rests on the patent owner, on each attorney or agent who represents the patent owner, and on every other individual who is substantively involved on behalf of the patent owner in a reexamination proceeding. All such individuals who are aware, or become aware, of patents or printed publications material to the reexamination which have not been previously made of record in the patent file must bring such patents

or printed publications to the attention of the Office. ►An information disclosure◄ [A prior art] statement, preferably in accordance with §1.98, should be filed within two months of the date of the order for reexamination, or as soon thereafter as possible in order to bring such patents or printed publications to the attention of the Office.

(b) Disclosures pursuant to this section ►must be accompanied by a copy of each foreign patent document or non-patent printed publication which is being disclosed and◄ may be made to the Office through an attorney or agent having responsibility on behalf of the patent owner for the reexamination proceeding or through a patent owner acting in his or her own behalf. Disclosure to such an attorney, agent or patent owner shall satisfy the duty of any other individual. Such an attorney, agent or patent owner has no duty to transmit information which is not material to the reexamination.

* * * * *

July 22, 1983. GERALD J. MOSSINGHOFF, *Commissioner of Patents and Trademarks.*

[1034 OG 15]

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(43) Revision of Patent and Trademark Fees

The purpose of this notice is to remind the public of changes in patent and trademark fees, effective Oct. 1, 1982, pursuant to Public Law 97–247, enacted Aug. 27, 1982. A final rule on "Revision of Patent and Trademark Fees" was published on July 30, 1982, at 47 FR 33086–33112 with corrections in the printing thereof being published on Aug. 4, 1982, at 47 FR 33688 and on Aug. 5, 1982, at 47 FR 33959. The final rule was also published in the Patent and Trademark Office Official Gazette on Aug. 10, 1982, at 1021 O.G. 19–94. In view of the enactment of Public Law 97–247, the "Alternative A—Rule Changes Under Only Public Law 96–517" relating to both patents and trademarks will *not* become effective. Instead, the "Rule Changes Common To Public Law 96–517 and H.R. 6260" and "Alternative B—Rule Changes Under H.R. 6260" will become effective for other patents and trademarks on Oct. 1, 1982. H.R. 6260 is now Public Law 97–247.

The Patent and Trademark Office has recieved a number of questions regarding the implementation of the changes in fees. The final rule published in the Federal Register on July 30, 1982, and in the Official Gazette on Aug. 10, 1982, contains implementing instructions which should be carefully read and followed. The final rule includes in the implementing instructions the following.

> "*Any fee which is due and payable on or after Oct. 1, 1982, must be paid in the amount and in accordance with the procedures contained in this rulemaking. For purposes of determining the amount of the fee to be paid, the date of mailing indicated on a proper Certificate of Mailing under §1.8 will be considered to be the date of receipt in the Office.*"

A "Certificate of Mailing under §1.8" is *not* "proper" for items which are specifically excluded from the provisions of §1.8. Section 1.8 of Title 37, Code of Federal Regulations, should be consulted for those items for which a Certificate of Mailing is *not* "proper." Such items include, *inter alia,* the filing of national and international applications for patent and the filing of trademark applications. Any application for patent or trademark filed, i.e., received in the Office, on or after Oct. 1, 1982, must include the fees which are effective on Oct. 1, 1982, since §1.8 does not apply to, and specifically excludes from its provisions, the filing of applications for patents and trademarks.

Sept. 14, 1982. GERALD J. MOSSINGHOFF, *Commissioner of Patents and Trademarks.*

[1022 O.G. 59]

(44) Filing of Verified Statements Claiming Small Entity Status

In view of the fact that the rules implementing the definition of small business concern were not published in the Federal Register until Sept. 30, 1982, any verified statement claiming small entity status will be accepted as timely filed if (1) the first fee in a patent application has been paid on or after Oct. 1, 1982, but before Feb. 27, 1983, in the amount established for a non-small entity and (2) such verified statement is filed within 3 months of the date of payment of the first fee in a patent application paid on or after Oct. 1, 1982, but before Feb. 27, 1983. If such a verified statement is timely filed within three months of the date of payment of the first fee paid on or after Oct. 1, 1982, but before Feb. 27, 1983, the statement will be treated as though it were present on the date the fee was paid. The correct amount of the fee will be determined and any excess will be refunded upon request. Section 1.28(a) of 37 CFR is waived until Feb. 27, 1983 to the extent it is inconsistent with this practice.

Oct. 15, 1982. DONALD J. QUIGG, *Acting Commissioner of Patents and Trademarks.*

[1023 O.G. 77]

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(45) Effect on Small Entity Status of License Pursuant to 35 USC 202(c) (4)

Public Law 96–517 added a new chapter 38 to Title 35 of the United States Code entitled "Patent Rights in Inventions Made With Federal Assistance." Under the provisions of the statute, each funding agreement between a Federal agency and an individual, small business firm or nonprofit organization must provide, inter alia, that ". . . the Federal agency shall have a nonexclusive, nontransferable, irrevocable, paid up license to practice or have practiced for or on behalf of the United States any subject invention . . ." See 35 U.S.C. 202(c) (4).

Under provisions of 37 CFR 1.9 and 1.27, an independent inventor, small business concern or nonprofit organization cannot qualify for reduced patent fees if it has assigned, granted, conveyed or licensed or is under an obligation under contract or law to assign, grant, convey or license any rights in the invention to other than an individual who could be classified as an independent inventor if that person had made the invention, a small business concern or a nonprofit organization. The Federal agencies do not qualify as nonprofit organizations for paying reduced patent fees under the rules. Applying this construction to the licensing of an invention to a Federal agency by an independent inventor, small business concern or nonprofit organization pursuant to a funding agreement under 35 U.S.C. 202(c) (4) would preclude their qualifying for paying reduced fees. This, however, would frustrate the intent of Public Law 97–247 and Public Law 96–517 when taken together.

This notice will serve as clarification that an independent inventor, small business concern or nonprofit organization, which is otherwise qualified as a small entity for purposes of paying reduced patent fees under 37 CFR 1.9 and 1.27, is not disqualified therefrom because of a license to a Federal agency pursuant to 35 U.S.C. 202(c) (4). A license to a Federal agency resulting from a funding agreement with that agency pursuant to 35 U.S.C. 202(c) (4) does not constitute a license for purposes of 37 CFR 1.9 or a transfer of rights for purposes of 37 CFR 1.27. Any other license or rights to a Federal agency will, of course, preclude qualification as a small entity for purposes of paying reduced fees.

Applicants who have previously paid fees which were not reduced for small entity status because of a license to a Federal agency pursuant to 35 U.S.C. 202(c) (4) may claim a refund by filing the proper verified statement as required by 37 CFR 1.27 and by making reference to this notice.

Jan. 14, 1983. GERALD J. MOSSINGHOFF, *Commissioner of Patents and Trademarks.*

[1027 OG 71]

(46)

Public Law 96-517
96th Congress
An Act

To amend the patent and trademark laws.

Dec. 12, 1980
[H.R. 6933]

Patent and trademark laws, amendment.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That title 35 of the United States Code, entitled "Patents", is amended by adding after chapter 29 the following new chapter 30:

"CHAPTER 30–PRIOR ART CITATIONS TO OFFICE AND REEXAMINATION OF PATENTS

" Sec.
"301. Citation of prior art.
"302. Request for reexamination.
"303. Determination of issue by Commissioner.
"304. Reexamination order by Commissioner.
"305. Conduct of reexamination proceedings.
"306. Appeal.
"307. Certificate of patentability, unpatentability, and claim cancellation.

"§ 301. Citation of prior art

35 USC 301.

Any person at any time may cite to the Office in writing prior art consisting of patents or printed publications which that person believes to have a bearing on the patentability of any claim of a particular patent. If the person explains in writing the pertinency and manner of applying such prior art to at least one claim of the patent, the citation of such prior art and the explanation thereof will become a part of the official file of the patent. At the written request of the person citing the prior art, his or her identity will be excluded from the patent file and kept confidential.

"§ 302. Request for reexamination

35 USC 302.

"Any person at any time may file a request for reexamination by the Office of any claim of a patent on the basis of any prior art cited under the provisions of section 301 of this title. The request must be in writing and must be accompanied by payment of a reexamination fee established by the Commissioner of Patents pursuant to the provisions of section 41 of this title. The request must set forth the pertinency and manner of applying cited prior art to every claim for which reexamination is requested. Unless the requesting person is the owner of the patent, the Commissioner promptly will send a copy of the request to the owner of record of the patent.

Fee.

Post, p. 3017.

"§ 303. Determination of issue by Commissioner

35 USC 303.

"(a) Within three months following the filing of a request for reexamination under the provisions of section 302 of this title, the Commissioner will determine whether a substantial new question of patentability affecting any claim of the patent concerned is raised by the request, with or without consideration of other patents or printed publications. On his own initiative, and any time, the Commissioner may determine whether a substantial new question of patentability is raised by patents and publications discovered by him or cited under the provisions of section 301 of this title.

"(b) A record of the Commissioner's determination under subsection (a) of this section will be placed in the official file of the patent and a copy promptly will be given or mailed to the owner of record of the patent and to the person requesting reexamination, if any.

Record.

"(c) A determination by the Commissioner pursuant to subsection (a) of this section that no substantial new question of patentability has been raised will be final and nonappealable. Upon such a determination, the Commissioner may refund a portion of the reexamination fee required under section 302 of this title.

Refund.

"§ 304. Reexamination order by Commissioner

35 USC 304.

"If, in a determination made under the provisions of subsection 303(a) of this title, the Commissioner finds that a substantial new question of patentability affecting any claim of a patent is raised, the determination will include an order for reexamination of the patent for resolution of the question. The patent owner will be given a reasonable period, not less than two months from the date a copy of the determination is given or mailed to him, within which he may file a statement on such question, including any amendment to his patent and new claim or claims he may wish to propose, for consideration in the reexamination. If the patent owner files such a statement, he promptly will serve a copy of it on the person who has requested reexamination under the provisions of section 302 of this title. Within a period of two months from the date of service, that person may file and have considered in the reexamination a reply to any statement filed by the patent owner. That person promptly will serve on the patent owner a copy of any reply filed.

Filing period.

"§ 305. Conduct of reexamination proceedings

35 USC 305.

"After the times for filing the statement and reply provided for by section 304 of this title have expired, reexamination will be conducted according to the procedures established for initial examination under the provisions of sections 132 and 133 of this title. In any reexamination proceeding under this chapter, the patent owner will be permitted to propose any amendment to his patent and a new claim or claims thereto, in order to distinguish the invention as claimed from the prior art cited under the provisions of section 301 of this title, or in response to a decision adverse to the patentability of a claim of a patent. No proposed amended or new claim enlarg-

35 USC 132, 133.

ing the scope of a claim of the patent will be permitted in a reexamination proceeding under this chapter. All reexamination proceedings under this section, including any appeal to the Board of Appeals, will be conducted with special dispatch within the Office.

35 USC 306.

"§ 306. Appeal

"The patent owner involved in a reexamination proceeding under this chapter may appeal under the provisions of section 134 of this title, and may seek court review under the provisions of sections 141 to 145 of this title, with respect to any decision adverse to the patentability of any original or proposed amended or new claim of the patent.

35 USC 134.
35 USC 141–145.

35 USC 307.

"§ 307. Certificate of patentability, unpatentability, and claim cancellation

"(a) In a reexamination proceeding under this chapter, when the time for appeal has expired or any appeal proceeding has terminated, the Commissioner will issue and publish a certificate canceling any claim of the patent finally determined to be unpatentable, confirming any claim of the patent determined to be patentable, and incorporating in the patent any proposed amended or new claim determined to be patentable.

35 USC 252.

"(b) Any proposed amended or new claim determined to be patentable and incorporated into a patent following a reexamination proceeding will have the same effect as that specified in section 252 of this title for reissued patents on the right of any person who made, purchased, or used anything patented by such proposed amended or new claim, or who made substantial preparation for the same, prior to issuance of a certificate under the provisions of subsection (a) of this section."

SEC. 2. Section 41 of title 35, United States Code, is amended to read as follows:

35 USC 41.

"§ 41. Patent fees

"(a) The Commissioner of Patents will establish fees for the processing of an application for a patent, from filing through disposition by issuance or abandonment, for maintaining a patent in force, and for providing all other services and materials related to patents. No fee will be established for maintaining a design patent in force.

"(b) By the first day of the first fiscal year beginning on or after one calendar year after enactment of this Act, fees for the actual processing of an application for a patent, other than for a design patent, from filing through dispostion by issuance or abandonment, will recover in aggregate 25 per centum of the estimated average cost to the Office of such processing. By the first day of the first fiscal year beginning on or after one calendar year after enactment, fees for the processing of an application for a design patent, from filing through disposition by issuance or abandonment, will recover in aggregate 50 per centum of the estimated average cost to the Office of such processing.

" (c) By the fifteenth fiscal year following the date of enactment of this Act, fees for maintaining patents in force will recover 25 per centum of the estimated cost to the Office, for the year in which such maintenance fees are received, of the actual processing all applications for patents, other than for design patents, from filing through disposition by issuance or abandonment. Fees for maintaining a patent in force will be due three years and six months, seven years and six months, and eleven years and six months after the grant of the patent. Unless payment of the applicable maintenance fee is received in the Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period. The Commissioner may require the payment of a surcharge as a condition of accepting within such six-month grace period the late payment of an applicable maintenance fee.

"(d) By the first day of the first fiscal year beginning on or after one calendar year after enactment, fees for all other services or materials related to patents will recover the estimated average cost to the Office of performing the service or furnishing the material. The yearly fee for providing a library specified in section 13 of this title with uncertified printed copies of the specifications and drawings for all patents issued in that year will be $50.

35 USC 13.

Waiver.

"(e) The Commissioner may waive the payment of any fee for any service or material related to patents in connection with an occasional or incidental request made by a department or agency of the Government, or any officer thereof. The Commissioner may provide any applicant issued a notice under section 132 of this title with a copy of the specifications and drawings for all patents referred to in that notice without charge.

35 USC 132.

"(f) Fees will be adjusted by the Commissioner to achieve the levels of recovery specified in this section; however, no patent application processing fee or fee for maintaining a patent in force will be adjusted more than once every three years.

Notice.

"(g) No fee established by the Commissioner under this section will take effect prior to sixty days following notice in the Federal Register."

SEC. 3. Section 42 of title 35, United States Code, is amended to read as follows:

35 USC 42.

"§ 42. Patent and Trademark Office funding

"(a) All fees for services performed by or materials furnished by the Patent and Trademark Office will be payable to the Commissioner.

"(b) All fees paid to the Commissioner and all appropriations for defraying the costs of the activities of the Patent and Trademark Office will be credited to the Patent and Trademark Office Appropriation Account in the Treasury of the United States, the provisions of section 725e of title 31, United States Code, notwithstanding.

"(c) Revenues from fees will be available to the Commissioner of Patents to carry out, to the extent provided for in appropriation Acts, the activities of the Patent and Trademark Office.

"(d) The Commissioner may refund any fee paid by mistake or any amount paid in excess of that required." Refund.

SEC. 4. Section 154 of title 35, United States Code, is amended by deleting the word "issue".

SEC. 5. Section 31 of the Trademark Act of 1946, as amended (15 U.S.C. 1113), is amended to read as follows:

"§ 31. Fees

"(a) The Commissioner of Patents will establish fees for the filing and processing of an application for the registration of a trademark or other mark and for all other services performed by and materials furnished by the Patent and Trademark Office related to trademarks and other marks. Fees will be set and adjusted by the Commissioner to recover in aggregate 50 per centum of the estimated average cost to the Office of such processing. Fees for all other services or materials related to trademarks and other marks will recover the estimated average cost to the Office of performing the service or furnishing the material. However, no fee for the filing or processing of an application for the registration of a trademark or other mark or for the renewal or assignment of a trademark or other mark will be adjusted more than once every three years. No fee established under this section will take effect prior to sixty days following notice in the Federal Register. Notice.

"(b) The Commissioner may waive the payment of any fee for any service or material related to trademarks or other marks in connection with any occasional request made by a department or agency of the Government, or any officer thereof. The Indian Arts and Crafts Board will not be charged any fee to register Government trademarks of genuineness and quality for Indian products or for products of particular Indian tribes and groups." Waiver. Indian products, exception.

SEC. 6. (a) Title 35 of the United States Code, entitled "Patents", is amended by adding after chapter 37 the following new chapter 38:

"CHAPTER 38–PATENT RIGHTS IN INVENTIONS MADE WITH FEDERAL ASSISTANCE

"Sec.

"200. Policy and objective.
"201. Definitions.
"202. Disposition of rights.
"203. March-in rights.
"204. Preference for United States industry.
"205. Confidentiality.
"206. Uniform clauses and regulations.
"207. Domestic and foreign protection of federally owned inventions.
"208. Regulations governing Federal licensing.
"209. Restrictions on licensing of federally owned inventions.
"210. Precedence of chapter.
"211. Relationship to antitrust laws.

"§200. Policy and objective. 35 USC 200.

"It is the policy and objective of the Congress to use the patent system to promote the utilization of inventions arising from federally supported research or development; to encourage maximum participation of small business firms in federally supported research and development efforts; to promote collaboration between commercial concerns and nonprofit organizations, including universities; to ensure that inventions made by nonprofit organizations and small business firms are used in a manner to promote free competition and enterprise; to promote the commercialization and public availability of inventions made in the United States by United States industry and labor; to ensure that the Government obtains sufficient rights in federally supported inventions to meet the needs of the Government and protect the public against nonuse or unreasonable use of inventions; and to minimize the costs of administering policies in this area.

"§201. Definitions 35 USC 201.

"As used in this chapter—

"(a) The term 'Federal agency' means any executive agency as defined in section 105 of title 5, United States Code, and the military departments as defined by section 102 of title 5, United States Code.

"(b) The term 'funding agreement' means any contract, grant, or cooperative agreement entered into between any Federal agency, other than the Tennessee Valley Authority, and any contractor for the performance of experimental, developmental, or research work funded in whole or in part by the Federal Government. Such term includes any assignment, substitution of parties, or subcontract of any type entered into for the performance of experimental, developmental, or research work under a funding agreement as herein defined.

"(c) The term 'contractor' means any person, small business firm, or nonprofit organization that is a party to a funding agreement.

"(d) The term 'invention' means any invention or discovery which is or may be patentable or otherwise protectable under this title.

"(e) The term 'subject invention' means any invention of the contractor conceived or first actually reduced to practice in the performance of work under a funding agreement.

"(f) The term 'practical application' means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are to the extent permitted by law or Government regulations available to the public on reasonable terms.

"(g) The term 'made' when used in relation to any invention means the conception or first actual reduction to practice of such invention.

"(h) The term 'small business firm' means a small business concern as defined at section 2 of Public Law 85-536 (15 U.S.C 632) and implementing regulations of the Administrator of the Small Business Administration.

"(i) The term 'nonprofit organization' means universities and other institutions of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c)) and exempt from taxation under section 501(a) of the Internal Revenue Code (26 U.S.C. 501(a)) or any nonprofit scientific or educational organization qualified under a State nonprofit organization statute.

35 USC 202.

"§202. Disposition of rights

Funding agreement.

"(a) Each nonprofit organization or small business firm may, within a reasonable time after disclosure as required by paragraph (c)(1) of this section, elect to retain title to any subject invention: *Provided, however,* That a funding agreement may provide otherwise (i) when the funding agreement is for the operation of Government-owned research or production facility, (ii) in exceptional circumstances when it is determined by the agency that restriction or elimination of the right to retain title to any subject invention will better promote the policy and objectives of this chapter or (iii) when it is determined by a Government authority which is authorized by statute or Executive order to conduct foreign intelligence or counterintelligence activities that the restriction or elimination of the right to retain title to any subject invention is necessary to protect the security of such activities. The rights of the nonprofit organization or small business firm shall be subject to the provisions of paragraph (c) of this section and the other provisions of this chapter.

Written determination.

Copy to Comptroller General.

Copy to SBA.

"(b)(1) Any determination under (ii) of paragraph (a) of this section shall be in writing and accompanied by a written statement of facts justifying the determination. A copy of each such determination and justification shall be sent to the Comptroller General of the United States within thirty days after the award of the applicable funding agreement. In the case of determinations applicable to funding agreements with small business firms copies shall also be sent to the Chief Counsel for Advocacy of the Small Business Administration.

Contrary agency determinations.

"(2) If the Comptroller General believes that any pattern of determinations by a Federal agency is contrary to the policy and objectives of this chapter or that an agency's policies or practices are otherwise not in conformance with this chapter, the Comptroller General shall so advise the head of the agency. The head of the agency shall advise the Comptroller General in writing within one hundred and twenty days of what action, if any, the agency has taken or plans to take with respect to the matters raised by the Comptroller General.

Report to congressional committees.

"(3) At least once each year, the Comptroller General shall transmit a report to the Committees on the Judiciary of the Senate and House of Representatives on the manner in which this chapter is being implemented by the agencies and on such other aspects of Government patent policies and practices with respect to federally funded inventions as the Comptroller General believes appropriate.

Funding agreement requirements.

"(c) Each funding agreement with a small business firm or nonprofit organization shall contain appropriate provisions to effectuate the following:

"(1) A requirement that the contractor disclose each subject invention to the Federal agency within a reasonable time after it is made and that the Federal Government may receive title to any subject invention not reported to it within such time.

"(2) A requirement that the contractor make an election to retain title to any subject invention within a reasonable time after disclosure and that the Federal Government may receive title to any subject invention in which the contractor does not elect to retain rights or fails to elect rights within such time.

"(3) A requirement that a contractor electing rights file patent applications within reasonable times and that the Federal Government may receive title to any subject inventions in the United States or other countries in which the contractor has not filed patent applications on the subject invention within such times.

"(4) With respect to any invention in which the contractor elects rights, the Federal agency shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States any subject invention throughout the world, and may, if provided in the funding agreement, have additional rights to sublicense any foreign government or international organization pursuant to any existing or future treaty or agreement.

"(5) The right of the Federal agency to require periodic reporting on the utilization or efforts at obtaining utilization that are being made by the contractor or his licensees or assignees: *Provided,* That any such information may be treated by the Federal agency as commercial and financial information obtained from a person and privileged and confidential and not subject to disclosure under section 552 of title 5 of the United States Code.

"(6) An obligation on the part of the contractor, in the event a United States

patent application is filed by or on its behalf or by any assignee of the contractor, to include within the specification of such application and any patent issuing thereon, a statement specifying that the invention was made with Government support and that the Government has certain rights in the invention.

"(7) In the case of a nonprofit organization, (A) a prohibition upon the assignment of rights to a subject invention in the United States without the approval of the Federal agency, except where such assignment is made to an organization which has as one of its primary functions the management of inventions and which is not, itself, engaged in or does not hold a substantial interest in other organizations engaged in the manufacture or sale of products or the use of processes that might utilize the invention or be in competition with embodiments of the invention (provided that such assignee shall be subject to the same provisions as the contractor); (B) a prohibition against the granting of exclusive licenses under United States Patents or Patent Applications in a subject invention by the contractor to persons other than small business firms for a period in excess of the earlier of five years from first commercial sale or use of the invention or eight years from the date of the exclusive license excepting that time before regulatory agencies necessary to obtain premarket clearance unless, on a case-by-case basis, the Federal agency approves a longer exclusive license. If exclusive field of use licenses are granted, commercial sale or use in one field of use shall not be deemed commercial sale or use as to other fields of use, and a first commercial sale or use with respect to a product of the invention shall not be deemed to end the exclusive period to different subsequent products covered by the invention; (C) a requirement that the contractor share royalties with the inventor; and (D) a requirement that the balance of any royalties or income earned by the contractor with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions, be utilized for the support of scientific research or education.

"(8) The requirements of sections 203 and 204 of this chapter.

Rights, retention.

"(d) If a contractor does not elect to retain title to a subject invention in cases subject to this section, the Federal agency may consider and after consultation with the contractor grant requests for retention of rights by the inventor subject to the provisions of this Act and regulations promulgated hereunder.

Rights, transfer or assignment.

"(e) In any case when a Federal employee is a coinventor of any invention made under a funding agreement with a nonprofit organization or small business firm, the Federal agency employing such coinventor is authorized to transfer or assign whatever rights it may acquire in the subject invention from its employee to the contractor subject to the conditions set forth in this chapter.

Third-party licensing, prohibition.

"(f)(1) No funding agreement with a small business firm or nonprofit organization shall contain a provision allowing a Federal agency to require the licensing to third parties of inventions owned by the contractor that are not subject inventions unless such provision has been approved by the head of the agency and a written justification has been signed by the head of the agency. Any such provision shall clearly state whether the licensing may be required in connection with the practice of a subject invention, a specifically identified work object, or both. The head of the agency may not delegate the authority to approve provisions or sign justifications required by this paragraph.

"(2) A Federal agency shall not require the licensing of third parties under any such provision unless the head of the agency determines that the use of the invention by others is necessary for the practice of a subject invention or for the use of a work object of the funding agreement and that such action is necessary to achieve the practical application of the subject invention or work object. Any such determination shall be on the record after an opportunity for an agency hearing. Any action commenced for judicial review of such determination shall be brought within sixty days after notification of such determination.

35 USC 203.

"§203. March-in rights

"With respect to any subject invention in which a small business firm or nonprofit organization has acquired title under this chapter, the Federal agency under whose funding agreement the subject invention was made shall have the right, in accordance with such procedures as are provided in regulations promulgated hereunder to require the contractor, an assignee or exclusive licensee of a subject invention to grant a nonexclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the contractor, assignee, or exclusive licensee refuses such request, to grant such a license itself, if the Federal agency determines that such–

"(a) action is necessary because the contractor or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use;

"(b) action is necessary to alleviate health or safety needs which are not reasonably satisfied by the contractor, assignee, or their licensees;

"(c) action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the contractor, assignee, or licensees; or

"(d) action is necessary because the agreement required by section 204 has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of its agreement obtained pursuant to section 204.

35 USC 204.

"§204. Preference for United States industry

"Notwithstanding any other provision of this chapter, no small business firm or nonprofit organization which receives title to any subject invention and no assignee of any such small business firm or nonprofit organization shall grant to any person the exclusive right to use or sell any subject invention in the United States unless such person agrees that any products embodying the subject invention or produced through the use of the subject invention will be manufactured substantially in the United States. However, in individual cases, the requirement for such an agreement may be waived by the Federal agency under whose funding agreement the invention was made upon a showing by the small business firm, nonprofit organization, or assignee that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible.

Waiver.

35 USC 205.

"§205. Confidentiality

"Federal agencies are authorized to withhold from disclosure to the public information disclosing any invention in which the Federal Government owns or may own a right, title, or interest (including a nonexclusive license) for a reasonable time in order for a patent application to be filed. Furthermore, Federal agencies shall not be required to release copies of any document which is part of an application for patent filed with the United States Patent and Trademark Office or with any foreign patent office.

35 USC 206.

"§206. Uniform clauses and regulations

"The Office of Federal Procurement Policy, after receiving recommendations of the Office of Science and Technology Policy, may issue regulations which may be made applicable to Federal agencies implementing the provisions of sections 202 through 204 of this chapter and the Office of Federal Procurement Policy shall establish standard funding agreement provisions required under this chapter.

35 USC 207.

"§207. Domestic and foreign protection of federally owned inventions

"Each Federal agency is authorized to–

"(1) apply for, obtain, and maintain patents or other forms of protection in the United States and in foreign countries on inventions in which the Federal Government owns a right, title, or interest;

"(2) grant nonexclusive, exclusive, or partially exclusive licenses under federally owned patent applications, patents, or other forms of protection obtained, royalty-free or for royalties or other consideration, and on such terms and conditions, including the grant to the licensee of the right of enforcement pursuant to the provisions of chapter 29 of this title as determined appropriate in the public interest;

35 USC 281 *et seq.*

"(3) undertake all other suitable and necessary steps to protect and administer rights to federally owned inventions on behalf of the Federal Government either directly or through contract; and

"(4) transfer custody and administration, in whole or in part, to another Federal agency, of the right, title, or interest in any federally owned invention.

35 USC 208.

"§208. Regulations governing Federal licensing

"The Administrator of General Services is authorized to promulgate regulations specifying the terms and conditions upon which any federally owned invention, other than inventions owned by the Tennessee Valley Authority, may be licensed on a nonexclusive, partially exclusive, or exclusive basis.

35 USC 209.

"§209. Restrictions on licensing of federally owned inventions

Development or marketing plan.

"(a) No Federal agency shall grant any license under a patent or patent application on a federally owned invention unless the person requesting the license has supplied the agency with a plan for development and/or marketing of the invention, except that any such plan may be treated by the Federal agency as commercial and financial information obtained from a person and privileged and confidential and not subject to disclosure under section 552 of title 5 of the United States Code.

Manufacture in U.S.

"(b) A Federal agency shall normally grant the right to use or sell any federally owned invention in the United States only to a licensee that agrees that any products embodying the invention or produced through the use of the invention will be manufactured substantially in the United States.

"(c)(1) Each Federal agency may grant exclusive or partially exclusive licenses in any invention covered by a federally owned domestic patent or patent application only if, after public notice and opportunity for filing written objections, it is determined that–

"(A) the interests of the Federal Government and the public will best be served by the proposed license, in view of the applicant's intentions, plans, and ability to bring the invention to practical application or otherwise promote the invention's utilization by the public;

"(B) the desired practical application has not been achieved, or is not likely expeditiously to be achieved, under any nonexclusive license which has been granted, or which may be granted, on the invention,

"(C) exclusive or partially exclusive licensing is a reasonable and necessary incentive to call forth the investment of risk capital and expenditures to bring the invention to practical application or otherwise promote the invention's utilization by the public; and

"(D) the proposed terms and scope of exclusivity are not greater than reason-

ably necessary to provide the incentive for bringing the invention to practical application or otherwise promote the invention's utilization by the public.

"(2) A Federal agency shall not grant such exclusive or partially exclusive license under paragraph (1) of this subsection if it determines that the grant of such license will tend substantially to lessen competition or result in undue concentration in any section of the country in any line of commerce to which the technology to be licensed relates, or to create or maintain other situations inconsistent with the antitrust laws. Antitrust factors.

"(3) First preference in the exclusive or partially exclusive licensing of federally owned inventions shall go to small business firms submitting plans that are determined by the agency to be within the capabilities of the firms and equally likely, if executed, to bring the invention to practical application as any plans submitted by applicants that are not small business firms. Small business preference.

"(d) After consideration of whether the interests of the Federal Government or United States industry in foreign commerce will be enhanced, any Federal agency may grant exclusive or partially exclusive licenses in any invention covered by a foreign patent application or patent, after public notice and opportunity for filing written objections, except that a Federal agency shall not grant such exclusive or partially exclusive license if it determines that the grant of such license will tend substantially to lessen competition or result in undue concentration in any section of the United States in any line of commerce to which the technology to be licensed relates, or to create or maintain other situations inconsistent with antitrust laws. Antitrust factors.

"(e) The Federal agency shall maintain a record of determinations to grant exclusive or partially exclusive licenses. Record.

"(f) Any grant of a license shall contain such terms and conditions as the Federal agency determines appropriate for the protection of the interests of the Federal Government and the public, including provisions for the following: Terms and conditions.

"(1) periodic reporting on the utilization or efforts at obtaining utilization that are being made by the licensee with particular reference to the plan submitted: *Provided*, That any such information may be treated by the Federal agency as commercial and financial information obtained from a person and privileged and confidential and not subject to disclosure under section 552 of title 5 of the United States Code;

"(2) the right of the Federal agency to terminate such license in whole or in part if it determines that the licensee is not executing the plan submitted with its request for a license and the licensee cannot otherwise demonstrate to the satisfaction of the Federal agency that it has taken or can be expected to take within a reasonable time, effective steps to achieve practical application of the invention;

"(3) the right of the Federal agency to terminate such license in whole or in part if the licensee is in breach of an agreement obtained pursuant to paragraph (b) of this section; and

"(4) the right of the Federal agency to terminate the license in whole or in part if the agency determines that such action is necessary to meet requirements for public use specified by Federal regulations issued after the date of the license and such requirements are not reasonably satisfied by the licensee.

"§210. Precedence of chapter 35 USC 210.

"(a) This chapter shall take precedence over any other Act which would require a disposition of rights in subject inventions of small business firms or nonprofit organizations contractors in a manner that is inconsistent with this chapter, including but not necessarily limited to the following:

"(1) section 10(a) of the Act of June 29, 1935, as added by title I of the Act of Aug. 14, 1946 (7 U.S.C. 427i(a); 60 Stat. 1085);

"(2) section 205(a) of the Act of Aug. 14, 1946 (7 U.S.C. 1624(a); 60 Stat. 1090);

"(3) section 501(c) of the Federal Mine Safety and Health Act of 1977 (30 U.S.C. 951(c); 83 Stat. 742); 91 Stat. 1320.

"(4) section 106(c) of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1395(c); 80 Stat. 721);

"(5) section 12 of the National Science Foundation Act of 1950 (42 U.S.C. 1871(a); 82 Stat. 360); 64 Stat. 154.

"(6) section 152 of the Atomic Energy Act of 1954 (42 U.S.C. 2182; 68 Stat. 943); 68 Stat. 944.

"(7) section 305 of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2457);

"(8) section 6 of the Coal Research Development Act of 1960 (30 U.S.C. 666; 74 Stat. 337);

"(9) section 4 of the Helium Act Amendments of 1960 (50 U.S.C. 167b; 74 Stat. 920);

"(10) section 32 of the Arms Control and Disarmament Act of 1961 (22 U.S.C. 2572; 75 Stat. 634);

"(11) subsection (e) of section 302 of the Appalachian Regional Development Act of 1965 (40 U.S.C. App. 302(e); 79 Stat. 5);

"(12) section 9 of the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5901); 88 Stat. 1878); 88 Stat. 1887. 42 USC 5908.

"(13) section 5(d) of the Consumer Product Safety Act (15 U.S.C. 2054(d); 86 Stat. 1211);

"(14) section 3 of the Act of April 5, 1944 (30 U.S.C. 323; 58 Stat. 191);

"(15) section 8001(c)(3) of the Solid Waste Disposal Act (42 U.S.C. 6981(c); 90 Stat. 2829);

"(16) section 219 of the Foreign Assistance Act of 1961 (22 U.S.C. 2179; 83 Stat. 806);

"(17) section 427(b) of the Federal Mine Health and Safety Act of 1977 (30 U.S.C. 937(b); 86 Stat. 155);

"(18) section 306(d) of the Surface Mining and Reclamation Act of 1977 (30 U.S.C. 1226(d); 91 Stat. 455);

"(19) section 21(d) of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2218(d); 88 Stat. 1548);

"(20) section 6(b) of the Solar Photovoltaic Energy Research Development and Demonstration Act of 1978 (42 U.S.C. 5585(b); 92 Stat. 2516);

7 USC 178j. "(21) section 12 of the Native Latex Commercialization and Economic Development Act of 1978 (7 U.S.C. 178(j); 92 Stat. 2533); and

92 Stat. 1316. "(22) section 408 of the Water Resources and Development Act of 1978 (42 U.S.C. 7879; 92 Stat. 1360).

The Act creating this chapter shall be construed to take precedence over any future Act unless that Act specifically cites this Act and provides that it shall take precedence over this Act.

"(b) Nothing in this chapter is intended to alter the effect of the laws cited in paragraph (a) of this section or any other laws with respect to the disposition of rights in inventions made in the performance of funding agreements with persons other than nonprofit organizations or small business firms.

Rights, disposition. "(c) Nothing in this chapter is intended to limit the authority of agencies to agree to the disposition of rights in inventions made in the performance of work under funding agreements with persons other than nonprofit organizations or small business firms in accordance with the Statement of Government Patent Policy issued on Aug. 23, 1971 (36 Fed. Reg. 16887), agency regulations, or other applicable regulations or to otherwise limit the authority of agencies to allow such persons to retain ownership of inventions. Any disposition of rights in inventions made in accordance with the Statement or implementing regulations, including any disposition occurring before enactment of this section, are hereby authorized.

Disclosure. "(d) Nothing in this chapter shall be construed to require the disclosure of intelligence sources or methods or to otherwise affect the authority granted to the Director of Central Intelligence by statute or Executive order for the protection of intelligence sources or methods.

35 USC 211. **"§211. Relationship to antitrust laws**

"Nothing in this chapter shall be deemed to convey to any person immunity from civil or criminal liability, or to create any defenses to actions, under any antitrust law."

(b) The table of chapters for title 35, United States Code, is amended by adding immediately after the item relating to chapter 37 the following:

"38. Patent rights in inventions made with Federal assistance."

SEC. 7. AMENDMENTS TO OTHER ACTS.—The following Acts are amended as follows:

(a) Section 156 of the Atomic Energy Act of 1954 (42 U.S.C. 2186; 68 Stat. 947) is amended by deleting the words "held by the Commission or".

(b) The National Aeronautics and Space Act of 1958 is amended by repealing paragraph (g) of section 305 (42 U.S.C. 2457(g); 72 Stat. 436).

(c) The Federal Nonnuclear Energy Research and Development Act of 1974 is amended by repealing paragraphs (g), (h), and (i) of section 9 (42 U.S.C. 5908 (g), (h), and (i); 88 Stat. 1889–1891).

Effective dates. SEC. 8. (a) Sections 2, 4, and 5 of this Act will take effect upon enactment.

35 USC 41 note. (b) Section 1 of this Act will take effect on the first day of the seventh month beginning after its enactment and will apply to patents in force as of that date or issued thereafter.

(c) Section 3 of this Act will take effect on the first day of the first fiscal year beginning on or after one calendar year after enactment. However, until section 3 takes effect, the Commissioner may credit the Patent and Trademark Office appropriation account in the Treasury of the United States with the revenues from collected reexamination fees, which will be available to pay the costs to the Office of reexamination proceedings.

(d) Any fee in effect as of the date of enactment of this Act will remain in effect until a corresponding fee established under section 41 of title 35, United States Code, or section 1113 of title 15, United States Code, takes effect.

(e) Fees for maintaining a patent in force will not be applicable to patents applied for prior to the date of enactment of this Act.

(f) Sections 6 and 7 of this Act will take effect on the first day of the seventh month beginning after its enactment. Implementing regulations may be issued earlier.

(g) Sections 8 and 9 will take effect on the date of enactment of this Act.

Computerized data and retrieval system, report to Congress. 35 USC 14 note. SEC. 9. The Commissioner of Patents and Trademarks shall report to Congress, within two years after the effective date of this Act, a plan to identify, and if necessary develop or have developed, computerized data and retrieval systems equivalent to the latest state of the art which can be applied to all aspects of the operation of the Patent and Trademark Office, and particularly to the patent search file, the patent classification system, and the trademark search file. The report shall specify the

cost of implementing the plan, how rapidly the plan can be implemented by the Patent and Trademark Office, without regard to funding which is or which may be available for this purpose in the future.

SEC. 10. (a) Section 101 of title 17 of the United States Code is amended to add at the end thereof the following new language:

"A 'computer program' is a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result." "Computer program."

(b) Section 117 of title 17 of the United States Code is amended to read as follows:

"§117. Limitations on exclusive rights: Computer programs 17 USC 117.

"Notwithstanding the provisions of section 106, it is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of that computer program provided: 17 USC 106.

"(1) that such a new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner, or

"(2) that such new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful.

"Any exact copies prepared in accordance with the provisions of this section may be leased, sold, or otherwise transferred, along with the copy from which such copies were prepared, only as part of the lease, sale, or other transfer of all rights in the program. Adaptations so prepared may be transferred only with the authorization of the copyright owner."

Approved Dec. 12, 1980.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 96-1307, Pt. I (Comm. on the Judiciary) and No. 96—1307, Pt. 2 (Comm. on Government Operations).
CONGRESSIONAL RECORD, Vol. 126 (1980):
Nov. 17, considered and passed House.
Nov. 20, considered and passed Senate, amended.
Nov. 21, House concurred in Senate amendment.

(47)

Public Law 97-247
97th Congress
An Act

To authorize appropriations to the Patent and Trademark Office in the Department of Commerce, and for other purposes. Aug. 27, 1982 [H.R. 6260]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there is authorized to be appropriated for the payment of salaries and necessary expenses of the Patent and Trademark Office to become available for fiscal year 1983, $76,000,000, and in fiscal years 1984 and 1985 such sums as may be necessary as well as such additional or supplemental amounts as may be necessary, for increases in salary, pay, retirement, or other employee benefits authorized by law. Funds available under this section shall be used to reduce by 50 per centum the payment of fees under section 41 (a) and (b) of title 35, United States Code, by independent inventors and nonprofit organizations as defined in regulations established by the Commissioner of Patents and Trademarks, and by small business concerns as defined in section 3 of the Small Business Act and by regulations established by the Small Business Administration. When so specified and the the extent provided in an appropriation Act, any amount appropriated pursuant to this section and, in addition, such fees as shall be collected pursuant to title 35, United States Code, and the Trademark Act of 1946, as amended (15 U.S.C. 1051 et seq.), may remain available without fiscal year limitation. Patent and Trademark Office. Appropriation authorization. 15 USC 632.

SEC. 2. Notwithstanding any other provision of law, there is authorized to be appropriated for the payment of salaries and expenses of the Patent and Trademark Office, $121,461,000 for the fiscal year ending September 30, 1982, and such additional or supplemental amounts as may be necessary for increases in salary, pay, retirement, or other employee benefits authorized by law.

SEC. 3. (a) Section 41(a) of title 35, United States Code, is amended to read as follows:

"(a) The Commissioner shall charge the following fees: Fees.

"1. On filing each application for an original patent, except in design or plant cases, $300; in addition, on filing or on presentation at any other time, $30 for each claim in independent form which is in excess of three, $10 for each claim (whether independent or dependent) which is in excess of twenty, and $100 for each application containing a multiple dependent claim. For the purpose of computing fees, a multiple dependent claim as referred to in section 112 of this title or any claim depending therefrom shall be considered as separate dependent claims in accordance with the number of claims to which reference is made. Errors in payment of the additional fees may be rectified in accordance with regulations of the Commissioner. 35 USC 112.

"2. For issuing each original or reissue patent, except in design or plant cases, $500.

"3. In design and plant cases:

"a. On filing each design application, $125.

"b. On filing each plant application, $200.

"c. On issuing each design patent, $175.

"d. On issuing each plant patent, $250.

"4. On filing each application for the reissue of a patent, $300; in addition, on filing or on presentation at any other time, $30. for each claim in independent form which is in excess of the number of independent claims of the original patent, and $10 for each claim (whether independent or dependent) which is in excess of twenty and also in excess of the number of claims of the original patent. Errors in payment of the additional fees may be rectified in accordance with regulations of the Commissioner.

"5. On filing each disclaimer, $50.

"6. On filing an appeal from the examiner to the Board of Appeals, $115; in addition, on filing a brief in support of the appeal, $115, and on requesting an oral hearing before the Board of Appeals, $100.

"7. On filing each petition for the revival of an unintentionally abondoned application for a patent or for the unintentionally delayed payment of the fee for issuing each patent, $500, unless the petition is filed under sections 133 or 151 of this title, in which case the fee shall be $50.

35 USC 133, 151.

"8. For petitions for one-month extensions of time to take actions required by the Commissioner in an application:

"a. On filing a first petition, $50.

"b. On filing a second petition, $100.

"c. On filing a third or subsequent petition, $200.".

(b) Section 41(b) of title 35, United States Code, is amended to read as follows:

Maintenance fees.

"(b) The Commissioner shall charge the following fees for maintaining a patent in force:

"1. Three years and six months after grant, $400.

"2. Seven years and six months after grant, $800.

"3. Eleven years and six months after grant, $1,200.

Expiration.

Unless payment of the applicable maintenance fee is received in the Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period.

Surcharge.

The Commissioner may require the payment of a surcharge as a condition of accepting within such six-month grace period the late payment of an application maintenance fee. No fee will be established for maintaining a design or plant patent in force."

(c) Section 41(c) of title 35, United States Code, is amended to read as follows:

Maintenance fee, delayed payment.

"(c)(1) The Commissioner may accept the payment of any maintenance fee required by subsection (b) of this section after the six-month grace period if the delay is shown to the satisfaction of the Commissioner to have been unavoidable.

Surcharge.

The Commissioner may require the payment of a surcharge as a condition of accepting payment of any maintenance fee after the six-month grace period. If the Commissioner accepts payment of a maintenance fee after the six-month grace period, the patent shall be considered as not having expired at the end of the grace period.

"(2) No patent, the term of which has been maintained as a result of the acceptance of a payment of a maintenance fee under this subsection, shall abridge or affect the right of any person or his successors in business who made, purchased or used after the six-month grace period but prior to the acceptance of a maintenance fee under this subsection anything protected by the patent, to continue the use of, or to sell to others to be used or sold, the specific thing so made, purchased, or used. The court before which such matter is in question may provide for the continued manufacture, use or sale of the made, purchased, or used as specified, or for the manufacture, use or sale of which substantial preparation was made after the six-month grace period but before the acceptance of a maintenance fee under this subsection, and it may also provide for the continued practice of any process, practiced, or for the practice of which substantial preparation was made, after the six-month grace period but prior to the acceptance of a maintenance fee under this subsection, to the extent and under such terms as the court deems equitable for the protection of investments made or business commenced after the six-month grace period but before the acceptance of a maintenance fee under the subsection."

(d) Section 41(d) of title 35, United States Code, is amended to read as follows:

Fees.

"(d) The Commissioner will establish fees for all other processing, services, or materials related to patents not specified above to recover the estimated average cost to the Office of such processing, services, or materials. The yearly fee for providing a library specified in section 113 of this title with uncertified printed copies of the specifications and drawings for all patents issued in that year will be $50."

35 USC 13.

(e) Section 41(f) of title 35, United States Code, is amended to read as follows:

Adjusted fees.

"(f) The fees established in subsections (a) and (b) of this section may be adjusted by the Commissioner on October 1, 1985, and every third year thereafter, to reflect any fluctuations occuring during the previous three years in the Consumer Price Index, as determined by the Secretary of Labor. Changes of less than 1 per centum may be ignored,".

(f) Subsection (a) of section 31 of the Trademark Act of 1946, as amended (15 U.S.C. 1113), is amended by deleting "Fees will be set and adjusted by the Commissioner to recover the aggregate 50 per centum of the estimated average cost to the Office of such processing. Fees for all other services or materials related to trade-

marks and other marks will recover the estimated average cost to the Office of performing the service or furnished the material.".

(g) Section 42(c) of the title 35, United States Code, is amended by adding the following sentence at the end thereof: "Fees available to the Commissioner under section 31 of the Trademark Act of 1946, as amended (15 U.S.C. 1113), shall be used exclusively for the processing of trademark registrations and for other services and materials related to trademarks.".

SEC. 4. Section 3(a) of title 35, United States Code is amended (1) by deleting the phrase "not more than fifteen"; and (2) by inserting the phrase "appointed under section 7 of this title" immediately after the phrase "examiners-in-chief".

SEC. 5. Section 111 of title 35, United States Code, is amended to read as follows:

"SEC. 111. Application for patent shall be made, or authorized to be made, by the inventor, except as otherwise provided in this title, in writing to the Commissioner. Such application shall include (1) a specification as prescribed by section 112 of this title; (2) a drawing as prescribed by section 113 of this title; and (3) an oath by the applicant as prescribed by section 115 of this title. The application must be accompanied by the fee required by law. The fee and oath may be submitted after the specification and any required drawing are submitted, within such period and under such conditions, including the payment of a surcharge, as may be prescribed by the Commissioner. Upon failure to submit the fee and oath within such prescribed period, the application shall be regarded as abandoned, unless it is shown to the satisfaction of the Commissioner that the delay in submitting the fee and oath was unavoidable. The filing date of an application shall be the date on which the specification and any required drawing are received in the Patent and Trademark Office.".

Applications.

35 USC 112.
35 USC 113.
35 USC 115.

Filing date.

SEC. (a) Section 116 of title 35, United States Code, is amended (1) by deleting the phrase "Joint inventors" from the title and inserting in its place "Inventors"; and (2) in the third paragraph, by deleting the phrase "a person is joined in an application for patent as joint inventor through error, or a joint inventor is not included in an application through error" and inserting in its place the phrase "through error a person is named in an application for patent as the inventor, or through error an inventor is not named in an application".

(b) Section 256 of title 35, United States Code, is amended to read as follows:

"§256. Correction of named inventor

"Whenever through error a person is named in an issued patent as the inventor, or through error an inventor is not named in an issued patent and such error arose without any deceptive intention on his part, the Commissioner may, on application of all the parties and assignees, with proof of the facts and such other requirements as may be imposed, issue a certificate correcting such error.

"The error of omitting inventors or naming persons who are not inventors shall not invalidate the patent in which such error occurred if it can be corrected as provided in this section. The court before which such matter is called in question may order correction of the patent on notice and hearing of all parties concerned and the Commissioner shall issue a certificate accordingly.".

SEC. 7. Section 6 of the title 35, United States Code, is amended by deleting paragraph (d) thereof.

SEC. 8. (a) Section 8(a) of the Trademark Act of 1946, as amended (15 U.S.C. 1058(a)), is amended (a) by deleting the word "still"; and (2) by inserting the phrase "in commerce" immediately after the word "use".

(b) Section 8(b) of the Trademark Act of 1946, as amended (15 U.S.C. 1058(b)), is amended (1) by deleting the word "still"; and (2) by inserting the phrase "in commerce" immediately after the word "use".

SEC. 9. (a) Section 13 of the Trademark Act of 1946, as amended (15 U.S.C. 1063), is amended (1) by deleting the phrase "a verified" and inserting in its place the word "an"; (2) by adding the phrase "when requested prior to the expiration of an extension" immediately after the word "cause"; and (3) by deleting the fourth sentence.

(b) Section 14 of the Trademark Act of 1946, as amended (15 U.S.C. 1064), is amended by deleting the word "verified".

SEC. 10. Section 15 of the Trademark Act of 1946, as amended (15 U.S.C. 1065), is amended by deleting the phrase "the publication" and inserting in its place the word "registration".

SEC. 11. The first sentence of section 16 of the Trademark Act of 1946, as amended (15 U.S.C. 1066), is amended to read as follows: "Upon petition showing extraordinary circumstances, the Commissioner may declare that an interference exists when application is made for the registration of a mark which so resembles a mark previously registered by another, or for the registration of which another has previously made application, as to be likely when applied to the goods or when used in connection with the services of the applicant to cause confusion or mistake or to deceive.".

SEC. 12. Section 21 of title 35, United States Code, is amended–

(1) by deleting the phrase "Day for taking action falling on Saturday, Sunday, or holiday" from the title and inserting in its place the phrase "Filing date and day for taking action";

(2) by inserting the following as subsection (a):

"(a) The Commissioner may be rule prescribe that any paper or fee required to be filed in the Patent and Trademark Office will be considered filed in the Office on the date on which it was deposited with the United States Postal Service or would have been deposited with the United States Postal Service but for

Filing date.

postal service interruptions or emergencies designated by the Commissioner.";

(3) by designating the existing paragraph as subsection (b); and

(4) by inserting the word "federal" in subsection (b), as designated above, immediately after the word "a".

SEC. 13. Section 6(a) of title 35, United States Code, is amended (1) by deleting the word "and", third occurrence, and inserting in its place a comma; (2) by inserting the phrase ", or exchanges of items or services" immediately after the word "programs"; and (3) by inserting the phrase "or the administration of the Patent and Trademark Office" immediately after the word "law", second occurrence.

SEC. 14. (a) Section 115 of title 35, United States Code, is amended by (1) deleting the phrase "shall be" and inserting in its place the word "is"; and (2) inserting the following immediately after the phrase "United States", third occurrence: ", or apostille of an official designated by a foreign country which, by treaty or convention, accords like effect to apostilles of designated officials in the United States".

(b) Section 261 of title 35, United States Code, is amended, in the third paragraph, by inserting the following immediately after the phrase "United States", third occurrence: ", or apostille of an official designated by a foreign country which, by treaty or convention, accords like effect to apostilles of designated officials in the United States".

(c) Section 11 of the Trademark Act of 1946, as amended (15 U.S.C. 1061), is amended by (1) deleting the phrase "shall be", first occurrence, and inserting in its place the word "is"; and (2) inserting the following immediately after the phrase "United States", third occurrence: ", or apostille of an official designated by a foreign country which, by treaty or convention, accords like effect to apostilles of designated officials in the United States".

SEC. 15. Section 13 of title 35, United States Code, is amended by deleting "(a)9" and inserting in its place "(d)".

SEC. 16. Section 173 of title 35, United States Code, is amended to read as follows: "Patents for designs shall be granted for the term of fourteen years."

Effective dates.
35 USC 41 note.

SEC. 17. (a) Sections 1, 2, 4, 7, and 13 through 15 of this Act shall take effect on the date of enactment of this Act. Stections 3 and 16 of this Act shall take effect on Oct. 1, 1982. The maintenance fees provided for in section 3(b) of this Act shall not apply to patents applied for prior to the date of enactment of this Act. Each patent applied for on or after the date of enactment of this Act shall be subject to the maintenance fees established pursuant to section 3(b) of this Act or to maintenance fees hereafter established by law, as to the amounts paid and the number and timing of the payments.

(b)(1) Title 35, United States Code, is amended by inserting after section 293 the following new section of chapter 29:

35 USC 294.

§294. Voluntary arbitration

"(a) A contract involving a patent or any right under a patent may contain a provision requiring arbitration of any dispute relating to patent validity or infringement arising under the contract. In the absence of such a provision, the parties to an existing patent validity or infringement dispute may agree in writing to settle such dispute by arbitration. Any such provision or agreement shall be valid, irrevocable, and enforceable, except for any grounds that exist at law or in equity for revocation of a contract.

Awards.
9 USC 1 *et seq.*
35 USC 282.

"(b) Arbitration of such disputes, awards by arbitrators and confirmation of awards shall be governed by title 9, United States Code, to the extent such title is not inconsistent with this section. In any such arbitration proceeding, the defenses provided for under section 282 of this title shall be considered by the arbitrator if raised by any party to the proceeding.

Modification.

"(c) An award by an arbitrator shall be final and binding between the parties to the arbitration but shall have no force or effect on any other person. The parties to an arbitration may agree that in the event a patent which is the subject matter of an award is subsequently determined to be invalid or unenforceable in a judgment rendered by a court to competent jurisdiction from which no appeal can or has been taken, such award may be modified by any court of competent jurisdiction upon application by any party to the arbitration. Any such modification shall govern the rights and obligations between such parties from the date of such modification.

Notices.

"(d) When an award is made by an arbitrator, the patentee, his assignee or licensee shall give notice thereof in writing to the Commissioner. There shall be a separate notice prepared for each patent involved in such proceeding. Such notice shall set forth the names and addresses of the parties, the name of the inventor, and the name of the patent owner, shall designate the number of the patent, and shall contain a copy of the award. If an award is modified by a court, the party requesting such modification shall give notice of such modification to the Commissioner. The Commissioner shall, upon receipt of either notice, enter the same in the record of the prosecution of such patent. If the required notice is not filed with the Commissioner, any party to the proceeding may provide such notice to the Commissioner.

Modification.

"(e) The award shall be unenforceable until the notice required by subsection (d) is received by the Commissioner."

(2) The analysis for chapter 29 of title 35 of the United States Code is amended by adding at the end the following:

"294. Voluntary arbitration.".

(c) Sections 5, 6, 8 through 12, and 17(b) of this Act shall take effect six months after enactment.

Approved Aug. 27, 1982.

LEGISLATIVE HISTORY—H.R. 6260
HOUSE REPORT No. 97-542 (Comm. on the Judiciary).
CONGRESSIONAL RECORD, Vol. 128 (1982):
June 8, considered and passed House.
Aug. 12, considered and passed Senate.
WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS, Vol. 18, No. 36 (1982):
Aug. 28, Presidential statement.

(48) 97TH CONGRESS HOUSE OF REPRESENTATIVES REPORT
2d Session No. 97-542

PATENT AND TRADEMARK OFFICE AUTHORIZATION

May 17, 1982.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. KASTENMEIER, from the Committee on the Judiciary, submitted the following

REPORT

[To accompany H.R. 6260]

[Including cost estimate of the Congressional Budget Office]

The Committee on the Judiciary, to whom was referred the bill (H.R. 6260) to authorize appropriations to the Patent and Trademark Office in the Department of Commerce, and for other purposes, having considered the same, report favorably thereon with an amendment and recommend that the bill as amended do pass.

The amendment strikes out all after the enacting clause of the bill and inserts a new text which appears in italic type in the reported bill.

PURPOSE OF THE BILL

The purpose of H.R. 6260 is to authorize appropriations for the Patent and Trademark Office for fiscal years 1983 through 1985.

STATEMENT

The Subcommittee on Courts, Civil Liberties and the Administration of Justice previously held two days of hearings on the legislation, receiving testimony from a representative group of witnesses including the Commissioner of Patents and Trademarks, the American Bar Association Section of Patent, Trademark and Copyright Law, the American Patent Law Association, the Patent, Trademark and Copyright Section of the State Bar of Virginia, the United States Trademark Association and the General Patent Counsel of the General Electric Corporation.

H.R. 6260 reflects the recommendation of the Administration with three modifications as follows. First, the Administration proposal authorized the Commissioner of Patents and Trademarks to establish fees administratively. The subcommittee approved an amendment to set forth specific fees in the statute and limited the Commissioner's authority to raise fees. Second, the Administration recommended that user fees recover 100% of the costs of actual processing of patents and trademarks. The subcommittee amended the bill to reduce by 50% patent filing and maintenance fees for individual inventors, small businesses and not for profit institutions. The effect of the amendment is to increase by $8 million the authorized appropriation which would have been provided under the original Administration request. Third, the subcommittee adopted a recommendation of the Commissioner of Patents and Trademarks, the American Bar Association and a coalition of corporate patent counsel permitting arbitration of patent disputes.

H.R. 6260 was considered by the Full Committee on the Judiciary on May 11, 1982 and was approved as reported by the subcommittee with an amendment offered by Mr. Frank described below.

SYNOPSIS OF H.R. 6260

SECTIONS 1—3

Authorizes the Patent and Trademark Office for fiscal year 1983 at an appropriations level of $76,000,000 and for fiscal years 1984 and 1985 such sums as may be necessary. This would be augmented by additional fee income under the bill of approximately $79 million for a total budget of $155 million. In fiscal year 1982 the Patent and Trademark Office was authorized at a level of $118,961,000 of which $29,600,000 was provided through fee income. Fiscal year 1983 will be the first year in which fee income under P.L. 96-517 will be credited to the Patent and Trademark Office without being counted as part of its authorized appropriation. Had this new accounting procedure been applied to fiscal year 1982 the authorization and appropriation for the Patent and Trademark Office would have been $89 million. This constitutes the actual level of taxpayer support of the Office. Thus, H.R. 6260 authorizes the expenditure of tax revenue in fiscal 1983 to support the Patent and Trademark Office at a level $21 million lower than for fiscal 1982. H.R. 6260 proposes to double current fees as the means of making up for the difference between a lower level of taxpayer support and an increased total budget. Further, maintenance fees

which were first authorized in P.L. 96-517 and which will not begin to be collected until fiscal year 1986 (Oct. 1, 1985) will also be doubled over the amounts provided for under P.L. 96-517.

The overall objective of H.R. 6260 is to provide for increased user support for the Patent and Trademark Office costs associated with the actual processing of patent applications by fiscal year 1996. The fee schedule is designed to return to the government 100% of actual costs. However, an amendment to the original Administration proposal adopted by the subcommittee would reduce by half the fees for individuals, small businesses and nonprofit inventors. At the present time less than 25% of the actual costs of processing patent applications are supported by fee revenue and under P.L. 96-517, which becomes effective on Oct. 1, 1982, this amount will gradually begin to rise but will only reach 50% of actual costs in 1996.

The amendment offered by Mr. Frank and approved by the Committee modifies that portion of Section 3 of H.R. 6260 dealing with Trademark fees. Public Law 96-517 (35 United States Code, section 31(a)) provides, "Fees will be set and adjusted by the Commissioner to recover in aggregate 50 per centum of the estimated average cost to the Office of such processing. Fees for all other services or materials related to trademarks and other marks will recover the estimated average cost. . .of performing the service or furnishing the material."

The Administration requested that the figure, "50 per centum", be changed to "100 per centum", thus mandating full recovery to the Treasury of all costs associated with processing trademarks.An amendment offered during subcommittee consideration of the legislation proposed to reduce fee generated revenue supporting processing of trademarks to less than the 100 per centum recovery level. The amendment was not agreed to. The author of the amendment, Mr. Frank, then proposed to amend the law to provide a statutory fee schedule which would return revenue to the Patent and Trademark Office at a level designed to recover 100 per centum of costs. However, following consultations with interested parties, Mr. Frank modified his amendment simply to repeal those portions of P.L. 96-517 which mandate a specified level of cost recovery for the processing of trademark registrations. Thus, the level of cost recovery for processing of trademark registrations will be within the discretion of the Commissioner. The Committee is aware of the concerns of users of the Trademark registration system, however, and intends to exercise vigorous oversight with respect to the Commissioner to ensure that fees remain at a reasonable level and that trademark registrations are processed in an efficient and cost effective manner. As part of this oversight, the Committee recommends the following fee structure to the Commissioner for Fiscal Year 1983.

Type of fee:	*Proposed fee*
Application filing fee per class	$175
Renewal fee	300
Late renewal	100
Section 12(c) claim	100
New certificate	100
Certificate of correction	100
Disclaimer to registration	100
Amendment to registration	100
Per class combines section 8 and 15 affidavit	200
Per class section 8 affidavit alone	100
Per class section 15 affidavit alone	100
All petitions to Commissioner	100
Cancellation opposition per class	200
TTAB appeal	100
Certified copies	10
Copies of trademarks	1
Assignments	([1])

[1] 100 plus for each mark in addition to 1.

Section 3(d) also permits the Commissioner of Patents to accept late payment of maintenance fees where it is established that the delay in payment was unavoidable.

Section 4 permits the Commissioner of Patents and Trademarks to appoint temporary examiners in chief for the Board of Patent Appeals to deal more flexibly with workload.

Section 5 permits late filing of the oath and fee accompanying submission of specifications and drawings which accompany patent claims.

Section 6 permits greater flexibility in correcting mistakes in the naming of inventors on a patent application.

Section 7 allocates funds from the Patent and Trademark Office to the Department of State to pay the financial obligations of administering the patent Cooperation Treaty.

Section 8 clarifies the Trademark law with respect to what constitutes use of a mark "in commerce".

Section 9 deletes the burdensome technical requirement that trademark oppositions be verified.

Section 10 makes the date of registration rather than the date of publication the crucial date for purposes of establishing the incontestability of a trademark. This eliminates an ambiguity in the present law.

Section 11 limits the declaration of interferences under the trademark law to situations where extraordinary circumstances exist.

Section 12 authorizes the Commissioner of the Patent and Trademark Office the flexibility to deal with problems of delay in filing due to postal service breakdowns.

Section 13 permits the Commissioner of Patents to enter into cooperative studies, programs, exchanges and similar ventures associated with the administration of the Patent Office.

Section 14 conforms U.S. Patent and Trademark Law to a recent international treaty governing diplomatic or consular legalization of documents.

Section 15 corrects a mistaken citation in P.L. 96-517.

Section 16 creates a uniform term for design patents.

Section 17 establishes the effective dates for provisions of the Act. Increased filing fees would apply to all applications made on or after the date of enactment of H.R. 6260.

Section 18 permits voluntary arbitration of patent disputes.

SECTION-BY-SECTION ANALYSIS

SECTION 1

This section authorizes appropriations for the Patent and Trademark Office for the payment of salaries and necessary expenses of the Office. For Fiscal Year 1983, this section authorizes appropriations of $76,000,000, and in fiscal years 1984 and 1985 such sums as may be necessary, as well as such additional and supplemental amounts as may be necessary to cover any increases in salary, pay, retirement, or employee benefits which may be authorized by law. Funds made available by these appropriations are to be used to reduce by 50 per centum the amount of the fees to be paid under title 35, United States Code, section 41(a) and (b) by independent inventors and nonprofit organizations as defined in regulations established by the Commissioner of Patents and Trademarks, and by small business concerns as defined in section 3 of the Small Business Act and by regulations established by the Small Business Administration.

In addition, fees collected pursuant to title 35, United States Code, and the Trademark Act of 1946, as amended (15 U.S.C. 1051 et seq.), will augment the authorized appropriation to provide the resources needed to conduct the operations of the Office for fiscal year 1983. The total resources for the Office in fiscal year 1983, that is, the amount appropriated pursuant to this section plus fees collected pursuant to the patent and trademark laws, which will be available to the Office, are estimated to be $154,934,000. The corresponding levels for fiscal year 1984 and fiscal year 1985 are estimated in the President's Budget to be $167 million and $176 million, respectiveiy. Any additional amounts to cover increases in salary, pay, retirement, or other employee benefits which may be authorized by law will be in addition to, and will therefore increase, those program levels. Finally, any funds appropriated pursuant to this section and all fees collected, when specified in an appropriation act, will remain available without any fiscal year limitation.

SECTION 2

This section provides that, notwithstanding any other provision of law, there is authorized to be appropriated to the Patent and Trademark Office for fiscal year 1982, $121,461,000 and such additional or supplemental amounts as may be necessary for increases in salary, pay, retirement, or other employee benefits authorized by law. This section increases the amount authorized for the Patent and Trademark Office by 2.5 million over that authorized in Public law 97-35. The President is recommending a supplemental appropriation of $2,500,000 for the Patent and Trademark Office for fiscal year 1982 in order to carry out the program recommendations included in his fiscal year 1983 Budget.

SECTION 3

This section establishes certain statutory fees which are to be charged by the Commissioner and authorizes the Commissioner to establish other fees whose amounts are not specifically set. Thus, the major routine fees which are applicable to patents and patent application processing are established (e.g., filing, issuance, and maintenance fees). The Commissioner is authorized to establish fees for all other processing, services, or materials related to patents which are not specifically established by statute. The processing and service fees, which would be established at a level to recover the estimated average costs to the Office. A more specific discussion of the various provisions of this section is set forth below.

Section 3(a) amends section 41(a) of title 35 to provide the amounts of the fees for filing and issuance of patent applications. In addition, the section includes provisions for increasing the filing fees due to increased complexities presented by certain applications, e.g., applications containing more than a specified number of claims and any application containing a multiple dependent claim. The section also provides that fees will be charged when the number of claims is increased above the specified number or when a multiple dependent claim is first presented, whether on filing or at a later point in processing.

Under section 41(a)1, the filing fee for an original patent, except in design or plant cases, is $300. In addition, on filing or on presentation at any other time, $30 is due for each claim in independent form which is in excess of three, $10 is due for each claim (whether independent or dependent) which is in excess of twenty, and $100 is due for each application containing a multiple dependent claim. The latter fee is a one-time charge per application due the first time a multiple dependent claim is presented for examination. For the purpose of computing fees, a multiple dependent claim as referred to in section 112 of title 35, United States Code, or any claim depending therefrom, will be considered as separate dependent claims in accordance with the number of claims to which reference is made. Under the section, errors in payment of the additional fees may be rectified in accordance with regulations of the Commissioner. This will enable the Commissioner to establish regulations whereby patent applications may correct, without prejudice, errors in payment of the additional fees, i.e., those in addition to the basic fees established.

Under section 41(a)2, the fee for issuing all original and reissue patents, except in design or plant cases, would be a uniform amount of $500. No supplemental issue fees are required.

Section 41(a)3 establishes fixed fees for filing applications for, and issuance of design and plant patents. For design patent cases, the filing fee would be $200 and the issue fee $250.

Section 41(a)4 relates to fees in reissue cases and establishes a fee of $300 for filing each application for the reissue of a patent. In addition, on filing or on presentation at any other time, $30 is due for each claim in independent form which is in excess of the number of independent claims of the original patent, and $10 is due for each claim (whether independent or dependent) which is in excess of twenty and also in excess of the number of claims of the original patent. Errors in payment of the additional fees may be rectified in accordance with regulations of the Commissioner.

Under section 41(a)5, a fee of $50 would be established for filing each disclaimer in a patent or patent application.

Section 41(a)6 establishes a fee due on filing an appeal from the examiner to the Board of Appeals of $115. In addition, a fee of $115 is due on filing a brief in support of the appeal, and a fee of $100 is due for requesting an oral hearing before the Board of Appeals.

Section 41(a)7 establishes two different fees for filing petitions with different standards to revive abandoned patent applications. The same two fees are applicable to petitions to accept the delayed payment of the fee for issuing a patent. The fees set forth in this section are due on filing the petition. Since the section provides for two alternative fees with different standards, the section would permit the applicant seeking revival or acceptance of a delayed payment of the fee for issuing a patent to choose one or the other of the fees and standards under such regulations as the Commissioner may establish. Under the section the Commissioner could establish time limits within which petitions under each of the different fees and standards can be filed. The section establishes a fee of $500 for filing each petition for revival or for acceptance of the delayed payment of an issue fee where the abandonment or the failure to pay the issue fee is unintentional. In order to prevent abuse and injury to the public the Commissioner could require a terminal disclaimer equivalent to the period of abandonment and could require applicants to act promptly after becoming aware of the abandonment. The section establishes a fee of $50 for filing a petition under sections 133 or 151 of title 35 in accordance with standards presently in effect requiring that the delay resulting in the abandonment, or the delay in payment of the issue fee, be unavoidable. Under this section a petition accompanied by either a fee of $500 or a fee of $50 would not be granted where the abandonment or the failure to pay the fee for issuing the patent was intentional as opposed to being unintentional or unaviodable. This section would permit the Commissioner to have more discretion than present law to revive abandoned applications and accept late payment of the fee for issuing a patent in appropriate circumstances.

Section 41(a)8 establishes fees for filing of petitions for extensions of time. Various time periods are set by the Office for taking actions on matters relating to patent applications. These time periods are set pursuant to statute or by regulations established by the Commissioner under the authority granted to the Commissioner by statute. This section would provide for fees for filing petitions to extend the time periods set pursuant to statute or by regulations for taking action within any limitations set by statute.

A fee of $50 is established for filing a request for a first one month extension of time, an additional fee of $100 for filing a request for a second one month extension of time which would expire two months after the end of the time period set for taking action, and an additional fee of $200 for filing a request for a third one month extension of time which would expire three months after the end of the time period set for taking action. A subsequent or fourth extension could be requested if additional time was available under the statute. In no case could a period be extended beyond the maximum time set by statute.

The Commissioner may issue regulations providing when, within any maximum period permitted by statute, petitions for extensions of time, and the required fee therefor, may be filed. This section does preclude the Commissioner from waiving the fee for filing a petition for an extension of time where the Office extends the period due to equity considerations or sufficient cause.

Section 41(b) provides that the Commissioner charge the following fees for maintaining a patent other than a design or plant patent, in force: at three years and six months after grant, $400; at seven years and six months after grant, $800; and at eleven years and six months after grant, $1,200. Unless payment of the applicable maintenance fee is received in the Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period. The Commissioner may require the payment of a surcharge as a condition of accepting within such six-month grace priod the late payment of a maintenance fee.

In order to avoid an inequitable loss of patent rights, the Commissioner is given the authority to accept payment of any maintenance fee after the six-month grace period if it is established that the delay in payment was unavoidable. It is intended that the Commissioner will issue regulations establishing guidelines for acceptance of late payment. After the expiration of a reasonable period of time, the patentee would bear a heavy burden of proof that the delay was unavoidable. A surcharge may be imposed by the Commissioner as a precondition to acceptance of a late fee. This surcharge may be in addition to any surcharge imposed for payment during the grace period.

A provision is included to protect the rights of one who began using or who took steps to begin use of a patent which expired for failure to pay a maintenance fee and which was subsequently reestablished by acceptance of the late payment. The intervening rights provision in section 41(c)(2) is similar to the intervening rights provision in 35 U.S.C. 252 concerning reissued patents.

Section 41(d) provides that the Commissioner establish fees for all other processing services, or materials related to patents not specified in section 41 at an amount calculated to recover the estimated average cost to the Office of such processing, services, or materi-

als. Such processing and other services includes, but is not limited to, the processing of various petitions desiring certain actions to be taken regarding patent applications, recording of assignments, reexamination of patents and the processing of international applications. Fees for materials include the price of patent copies, certifications and other copying services. The yearly fee for providing a library specified in section 13 of title 35 with uncertified copies of the specifications and drawings for all patents issued in that year is set at $50.

Section 41(f) provides that the fees established in subsections (a) and (b) of section 41 may be adjusted by the Commissioner on Oct. 1, 1985, and every third year thereafter, to reflect any fluctuations occurring during the previous three years in the Consumer Price Index, as determined by the Secretary of Labor. Changes of less than one per centum may be ignored by the Commissioner in making such adjustments.

Subsection (a) of section 31 of the Trademark Act of 1946, as amended (15 U.S.C. 1113), is being changed to grant the Commissioner discretion to establish the level of recovery of office costs related to trademarks. It is expected that the Commissioner will set the fees in a way that the filing fee will be kept as low as possible to foster use of the Federal registration system. This may require that other fees for services or materials related to trademarks recover more than their actual estimated cost in order that the Commissioner achieve in the aggregate adequate cost recovery for the entire trademark operation.

A provision is inserted in section 42(c) of title 35 in order to ensure that the tradermark fees collected are used to fund trademark operations only and not the processing of patent applications.

SECTION 4

Section 3 of title 35 is amended by deleting specific reference to the number of examiners-in-chief in the first sentence. Elimination of the upper limit on the number of permanent members of the Board of Appeals would provide greater flexibility in filling most of its personnel needs, thereby avoiding an excess of examiner details. The authority to appoint acting examiners-in-chief, however, is maintained in order that temporary fluctuations in the workload of the Board may be accommodated.

SECTION 5

Under revised section 111 of title 35, the filing date of an application would be that on which the specification and any required drawings are received by the Patent and Trademark Office. The oath or declaration and filing fee could be submitted at such later time as established by the Commissioner, without any loss of the original filing date. Under the amendment, an applicant could either file the oath or declaration (including the applicant's signature) and fee together with an application or submit them at a later time as determined by the Commissioner.

The section would also authorize the imposition of a surcharge as a condition for accepting filing of the oath of payment of the filing fee after the filing date of the application. Since an application filed without the oath or declaration would not be signed or "made" by the applicant, the amendment permits a patent attorney or agent, authorized by the applicant, to submit the specification and drawings for the purpose of obtaining a filing date. Should the applicant, however, fail to file the oath or declaration, or pay the filing fee within the time limits set by the Commissioner, the application would be regarded as having been abandoned.

SECTION 6

The third paragraph of section 116 of title 35 is amended to enlarge the possibilities for correcting misnamed inventive entities. As a consequence, correction would be permitted also in cases where the person originally named as inventor was in fact not the inventor of the subject matter contained in the application. If such error occurred without any deceptive intention on the part of the true inventor, the Commissioner would have the authority to substitute the true inventor for the erroneously named person. Although probably rarer, instances such as changes from a mistakenly identified sole inventor to a different, but actual, joint inventors, conversions from erroneously identified joint inventors to different but actual, joint inventors, and conversions from erroneously identified joint inventors to a different, but actual, sole inventor would also be permitted. In each instance, however, the Commissioner must be assured of the presence of innocent error, without deceptive intention on the part of the true inventor or inventors, before permitting a substitution of a true inventor's name.

The ability to receive a filing date based on a specification and drawings without signature as set forth in revised section 111 of title 35, and to file the oath or declaration and pay the filing fee within such period as determined by the Commissioner is also available to joint inventors.

Section 256 of title 35, which is a companion to section 116, would be amended to similarly enlarge the possibilities for correction of misnamed inventors in issued patents.

SECTION 7

Section 6(d) of title 35, which provides for the allocation of appropriated Patent and Trademark Office funds to the Department of State for payment of United States financial obligations under the Patent Cooperation Treaty, is deleted. The Department of State has traditionally assumed responsibility for financial obligations for international agreements to which the United States adheres.

SECTION 8

Section 8(a) of the Trademark Act is amended to clarify that the continued use required to be shown in the sixth year be use "in commerce". Although it is believed by some that omission of the words "in commerce" may have been inadvertent in the 1946 Act, this

section has been interpreted so that use in a foreign country, or use in intrastate commerce, is sufficient. Such interpretation is fundamentally in conflict with other requirements of the Act.

Section 8(b) of the Act is also amended to clarify that the continued use required to be shown in the sixth year be use "in commerce" . Although it is believed by some that omission of the words " in commerce" may have been inadvertent in the 1946 Act, this section has interpreted so that use in a foreign country, or use in intrastate commerce, is sufficient. Such interpretation is fundamentally in conflict with other requirements of the Act.

Section 8(b) of the Act is also amended to clarify that the continued use required to be shown in the sixth year be use "in commerce" for registrations published under section 12(c) of the Act. (This pertains to registrations issued under the Act of Mar. 3, 1881 and the Act of Feb. 20, 1905).

The word "still" has been deleted from section 8(a) and 8(b). Thus, the owner of a registration issued on the basis of a foreign registration under the provisions of section 44(e) of the Act will have to submit an affidavit to the effect that the mark is in use in commerce. Since the mark need not be used in commerce when it is registered, the requirement cannot be required to state that it is "still" in such use.

SECTION 9

Section 13 of the Trademark Act is amended to delete the requirement that an opposition be verified. The sentence which allowed an unverified application to be verified at a later date has been deleted. In addition, a phrase has been added to make it clear that any subsequent extension of time to file an opposition, beyond the first extension, must be requested before the end of the preceding extension.

Section 14 of the Trademark Act would also be amended to delete the requirement that a petition to cancel a registration be verified.

SECTION 10

Section 15 of the Trademark Act is amended to change the term "the publication" to "registration" in the first sentence. This change makes the date of registration rather than the date of publication the crucial date for purposes of incontestablility. It will also make section 15 consistent with sections 22 and 33 of the Act.

SECTION 11

Section 16 of the Trademark Act is amended to limit the declaration of interferences to those situations where a petition to the Commissioner shows that extraordinary circumstances exist, the rights of the parties can be determined adequately by the existing opposition and cancellation procedures. Additionally, if an interference is declared between an application and a registration and the applicant wins, a cancellation must still be initiated against the registration.

SECTION 12

A new subsection (a) has been added to section 21 of title 35 to authorize, but not to require, the Commissioner of Patents and Trademarks to give as the filing date of any paper or fee which is required to be filed in the Patent and Trademark Office the date on which the paper or fee was deposited with the United States Postal Service. The Commissioner may also give as the filing date of any paper or fee which was required to be filed in the Patent and Trademark Office the date it would have been deposited with the United States Postal Service but for postal service interruptions or emergencies which the Commissioner designates. The requirements governing whether any given paper or fee may be given the filing date of the day on which it was, or would have been deposited with the United States Postal Service will be set forth in regulations established by the Commissioner.

Section 21(b) of title 35 is identical to existing section 21 with two minor amendments. The word "federal" has been inserted before the phrase "holiday within the District of Columbia" to clarify the nature of the holiday.

SECTION 13

This section clarifies the authority of the Commissioner in section 6(a) of title 35 to enter into a wide range of cooperative agreements concerning the patent and trademark laws or the administration of the Patent and Trademark Office. These agreements are in addition to the exchange of publications authorized in 35 U.S.C. 11(b) and 12. These cooperative agreements may take the form of studies, programs, exchanges, and other similar ventures. Thus, the Patent and Trademark Office could, for example, exchange patent copies, non-patent literature, tapes or services in return for goods or services of value to the Patent and Trademark Office.

SECTION 14

The amendments of 35 U.S.C. 115 and Section 11 of the Trademark Act of 1946 recognize the Hague "Convention Abolishing the Requirement of Legalization for Foreign Public Documents" which entered into force in the United States on Oct. 15, 1981. The Convention abolishes the requirement of diplomatic or consular legalization for foreign public documents which are sworn to or acknowledged by a notary public in any of the countries adhering to the Convention. For documents executed by a notary public of all other foreign countries, diplomatic or consular legalization will still be required.

The amendment of 35 U.S.C. 261 is intended to give affirmative effect to acknowledgments executed pursuant to the Hague Convention.

SECTION 15

This section corrects an incorrect citation. Public Law 96–517 amended section 41 of title 35, United States Code, in a way which eliminated 35 U.S.C. §41(a)(9). Unfortunately,

section 13 of title 35, United States Code, was not amended accordingly by Public Law 96–517. This section corrects that oversight.

SECTION 16

This section sets a uniform term of fourteen years for all design patents.

SECTION 17

Sections 17(a) and (c) specify the effective dates of the Act. Section 17(a) also specifies that the maintenance fees provided for in section 3(b) of this Act will only apply to patents in which the application was filed on and after the date of enactment or to maintenance fees later established by law.

Section 17(b) adds a section to title 35 providing for the voluntary arbitration of patent disputes by the parties to the dispute. The section requires that the Commissioner be notified in writing of an award made by an arbitrator or modified by a court. Such notification will be entered in the record of the prosecution of the patent.

At present, agreements to arbitrate some aspects of disputes arising under patent licenses are enforceable by the courts; however, there have been court decisions that have disapproved arbitration of disputes concerning patent validity or infringement. In this regard, see, for example, *Zip Mfg. Co.* v. *Pep Mfg. Co.* 44 F.2d 184, 7 U.S.P.Q. 62 (D. Del. 1930) and *Beckman Instruments, Inc.* v. *Technical Developments Corp.* 433 F.2d 55, 167 U.S.P.Q. 10 (7th Cir. 1965).

Partly as a reaction to those decisions, during the 93rd Congress both the Department of Commerce and the Department of Justice endorsed a provision specifically authorizing arbitration of validity and infringement disputes. This provision, included in an omnibus patent law revision bill, S. 2504, was never enacted due tot he many controversial aspects of that legislation.

In the view of the Committee, a statutory authorization of voluntary agreements to arbitrate validity and infringement disputes would benefit both the parties to these disputes and the public.

Statutory endorsement of arbitration agreements would assure the parties that they could avail themselves of the numerous advantages of arbitration without the possibility of having to reargue the dispute in court. The advantages of arbitration are many: it is usually cheaper and faster than litigation; it can have simpler procedural and evidentiary rules; it normally minimizes hostility and is less disruptive of ongoing and future business dealings among the parties; it is often more flexible in regard to scheduling of times and places of hearings and discovery devices; and, arbitrators are frequently better versed than judges and juries in the area of trade customs and the technologies involved in these disputes.

The enforcement of voluntary arbitration provisions would serve the public in two ways. First, the availablity of arbitration with its numerous advantages will enhance the patent system and thus will encourage innovation. This view is supported by the Committee for Economic Development in their Jan. 1980 statement entitled "Stimulating Technological Progress." Secondly, arbitration could relieve some of the burdens on the overworked Federal courts. Chief Justice Burger in his speech to the American Bar Association on Jan. 24, 1982, generally endorsed the use of arbitration to reduce the judicial backlog. Also, I think it is important to note that the American Bar Association's Section on Patent, Trademark and Copyright Law has endorsed court enforcement of arbitration agreements calling for arbitration of validity and infringement.

The recommendations of the Secretary of Commerce to increase substantially patent and trademark user fees were made on the promise that such increases "will lay the groundwork for revitalizing the patent and trademark systems." The Secretary committed to three major goals: (1) to reach an average patent application pendency time of 18 months by FY 1987, (2) to issue an examiner's first action on trademark registrability in three months and disposal of an application within 13 months, and (3) to move realistically toward a fully automated Office by the 1990's. In accepting the Administration's recommendations on user fees, the Committee fully expects the Administration to live up to its end of the bargain to bring about a first-class Patent and Trademark Office. To provide an opportunity for timely and effective Committee oversight of progress toward improving the Patent and Trademark Office, the Committee directs that the Secretary of Commerce report annually to the Committee on progress toward achieving the three major goals of the Patent and Trademark Office, as outlined above, and, in addition, promptly inform the Committee at any time it appears that any of the goals, for any reason, is viewed as not attainable.

OVERSIGHT STATEMENT

The Committee on the Judiciary has oversight responsibility over the Patent and Trademark Office in the Department of Commerce. In addition to its ongoing oversight, the Committee's Subcommittee on Courts, Civil Liberties and the Administration of Justice held an oversight hearing with respect to the Patent and Trademark Office on Mar. 4, 1981, published as Oversight Hearings Before the Subcommittee on Courts, Civil Liberties and the Administration of Justice of the Committee on the Judiciary, House of Representatives, Ninety-Seventh Congress, First Session on the Copyright Office, The U.S. Patent and Trademark Office, and the Copyright Royalty Tribunal. Serial No. 17.

The Committee expects to continue its oversight activities in this area.

STATEMENT OF THE BUDGET COMMITTEE

No statement has been received on H.R. 6260 from the House Committee on the Budget.

STATEMENT OF THE CONGRESSIONAL BUDGET OFFICE

Pursuant to clause 7, rule XIII of the Rules of the House of Representatives and section

403 of the Congressional Budget Act of 1974, the following is the cost estimate of H.R. 6260, as amended, prepared by the Congressional Budget Office.

U.S. CONGRESS
CONGRESSIONAL BUDGET OFFICE,
Washington, D.C., May 13, 1982.

Hon. PETER W. RODINO, Jr.,
Chairman, Committee on the Judiciary, House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: Pursuant to Section 403 of the Congressional Budget Act of 1974, the Congressional budget Office has prepared the attached cost estimate for H.R. 6260, a bill to authorize appropriations to the Patent and Trademark Office in the Department of Commerce, and for other purposes.

Should the Committee so desire, we would be pleased to provide further details on this estimate.

Sincerely

ALICE M. RIVLIN, *Director.*

CONGRESSIONAL BUDGET OFFICE, COST ESTIMATE

1. Bill number: H.R. 6260.

2. Bill title: A bill to authorize appropriations to the Patent and Trademark Office in the Department of Commerce, and for other purposes.

3. Bill status: As ordered reported by the House Committee on the Judiciary, May 11, 1982.

Bill purpose: H.R. 6260 would authorize 1982 appropriations at a level $2.5 million above the amount already appropriated, and would provide a $76 million authorization level in 1983 to carry out the activities of the Patent and Trademark Office (PTO). In addition, such sums as may be necessary are authorized for fiscal years 1984 and 1985, plus such additional or supplemental amounts as may be necessary for increases in salary, pay, retirement, or other benefits authorized by law for each fiscal year 1983 thorugh 1985. PTO would also have available for obligation offsetting fee collections as provided for in Public Law 96–517, plus the additional fees as specified in H.R. 6260.

Assuming enactment of H.R. 6260, total PTO collections over time would result in recovery of approximately 100 percent of patent and trademark processing costs. Individuals, small businesses, and non-profit institutions would be exempt from the proposed additional fees, however, but would continue to follow the fee schedule outlined in P.L. 96–517, which assumes the ultimate recovery of approxiamtely 50 percent of all processing costs.

the President's 1982 budget includes a request for a $2.5 million supplemental for the PTO. The Administration has recommended increasing user fees to ultimately recover 100 percent of processing costs beginning in 1983, but does not provide for any exemptions to the proposed fee increases relative to current law. The effect of exemptions is to increase by approximately $8 million the authorized level of appropriations relative to the Administration's request.

In addition, the bill would make a number of other changes that are not expected to have a cost impact.

5. Cost estimate:

[By fiscal years, in millions of dollars]

	1982	1983	1984	1985	1986
Authorization level:					
Specified	2.5	76.0	....	....	....
Estimated	....	6.8	86.4	86.8	....
Subtotal	2.5	82.8	86.4	86.8	....
Total estimated outlays	2.4	61.8	82.4	82.8	5.5

Including outlays from appropriations to date for PTO, total 1982 outlays are estimated to be $121.5 million, and total 1983 outlays are estimated to be $79.8.

The costs of this bill fall within budget subfunction 376.

6. Basis of estimate: The authorization levels for PTO for 1982 and 1983 are those specified in the bill. The estimate authorization levels for 1984 and 1985 assume a level of funding sufficient to maintain a program level of $167 million and $176 million, respectively, including offsetting collections. In addition, authorization for increases in pay and other benefits of approximately $6.8 million, $7.4 million, and $7.8 million for fiscal years 1983 through 1985, respectively, were estimated based on CBO's current inflators. Outlays are based on historical spending patterns.

The estimated collections to PTO as a result of fees charged to cover the costs of processing trademarks and patents were provided by the agency, and assume the fee structure outlined in the bill. The estimated collections, under current law and under H.R. 6260, are shown in the table below.

[By fiscal years, in millions of dollars]

	1982	1983	1984	1985	1986
Estimated offsetting collections:					
Current law	....	47.8	52.7	57.7	....
Added by H.R. 6260	....	31.2	35.3	39.3	....
Total—H.R. 6260	....	79.0	88.0	97.0	....

7. Estimate comparison: None.
8. Previous CBO estimate: None.
9. Estimate prepared by: Mary B. Maginniss.
10. Estimate approved by: C. G. Nuckols (James L. Blum, Assistant Director for Budget Analysis).

COMMITTEE VOTE

The Committee on the Judiciary ordered H.R. 6260 as amended reported by a voice vote, without objection being heard, with a quorum of Members being present.

CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

In compliance with clause 3 of Rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italics, existing law in which no change is proposed is shown in roman):

TITLE 35, UNITED STATES CODE
PART 1—PATENT AND TRADEMARK OFFICE

* * * * *

CHAPTER 1—ESTABLISHMENT, OFFICERS, FUNCTIONS

* * * * *

§3. Officers and employees

(a) There shall be in the Patent and Trademark Office a Commissioner of Patents and Trademarks, a Deputy Commissioner, two Assistant Commissioners, and [not more than fifteen] examiners-in-chief *appointed under section 7 of this title.* The Deputy Commissioner, or, in the event of a vacancy in that office, the Assistant Commissioner senior in date of appointment shall fill the office of Commissioner during a vacancy in that office until the Commissioner is appointed and takes office. The Commissioner of Patents and Trademarks, the Deputy Commissioner, and the Assistant Commissioners shall be appointed by the President, by and with the advice and consent of the Senate. The Secretary of Commerce, upon the nomination of the Commissioner, in accordance with law shall appoint all other officers and employees.

* * * * *

§6. Duties of Commissioner

(a) The Commissioner, under the direction of the Secretary of Commerce, shall superintend or perform all duties required by law respecting the granting and issuing of patents and the registration of trademarks; shall have the authority to carry on studies [and] programs, *or exchanges of items or services* regarding domestic and international patent and trademark law *or the administration of the Patent and Trademark Office,* and shall have charge of property belonging to the Patent and Trademark Office. He may, subject to the approval of the Secretary of Commerce, establish regulations, not inconsistent with law, for the conduct of proceedings in the Patent and Trademark Office.

(b) The Commissioner, under the direction of the Secretary of Commerce, may, in coordination with the Department of State, carry on programs and studies cooperatively with foreign patent offices and international intergovernmental organizations, or may authorize such programs and studies to be carried on, in connection with the performance of duties stated in subsection (a) of this section.

(c) The Commissioner, under the direction of the Secretary of Commerce, may, with the concurrence of the Secretary of State, transfer funds appropriated to the Patent and Trademark Office, not to exceed $100,000 in any year, to the Department of State for the purpose of making special payments to internatinal intergovernmental organizations for studies and programs for advancing international cooperation concerning patents, trademarks, and related matters. These special payments may be in addition to any other payments or contributions to the international organization and shall not be subject to any limitations imposed by law on the amounts of such other payments or contributions by the Government of the United States.

[(d) The Commissioner, under the direction of the Secretary of Commerce, may, with the concurrence of the Secretary of State, allocate funds appropriated to the Patent Office, to the Department of State for the purpose of payment of the share on the part of the United States to the working capital fund established under the Patent Cooperation Treaty. Contributions to cover the share on the part of the United States of any operating deficits of the International Bureau under the Patent Cooperation Treaty shall be included in the annual budget of the Patent Office and may be transferred by the Commissioner, under the direction of the Secretary of Commerce, to the Department of State for the purpose of making payments thereof to the International Bureau.]

* * * * *

§13. Copies of patents for public libraries

The Commissioner may supply printed copies of specifications and drawings of patents to public libraries in the United States which shall maintain such copies for the use of the public, at the rate for each year's issue established for this purpose in section 41 [(a)9] *(d)* of this title.

* * * * *

CHAPTER 2—PROCEEDINGS IN THE PATENT AND TRADEMARK OFFICE

* * * * *

§21. [Day for taking action falling on Saturday, Sunday, or holiday] *Filing date and day for taking action.*

(a) The Commissioner may by rule prescribe that any paper or fee required to be filed in the

Patent and Trademark Office will be considered filed in the Office on the date on which it was deposited with the United States Postal Service or would have been deposited with the United States Postal Service but for postal service interruptions or emergencies designated by the Commissioner.

(b) When the day, or the last day, for taking any action or paying any fee in the United States Patent and Trademark Office falls on Saturday, Sunday, or a *Federal* holiday within the District of Columbia, the action may be taken, or the fee paid, on the next succeeding secular or business day.

* * * * *

CHAPTER 4—PATENT FEES

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§41. Patent fees

[(a) The Commissioner of Patents will establish fees for the processing of an application for a patent, from filing through disposition by issuance or abandonment, for maintaining a patent in force, and for providing all other services and materials related to patents. No fee will be established for maintaining a design patent in force.

[(b) By the first day of the first fiscal year beginning on or after one calendar year after enactment of this Act, fees for the actual processing of an application for a patent, other than for a design patent, from filing through disposition by issuance or abandonment, will recover in aggregate 25 per centum of the estimated average cost to the Office of such processing. By the first day of the first fiscal year beginning on or after one calendar year after enactment, fees for the processing of an application for a design patent, from filing through disposition by issuance or abandonment, will recover in aggregate 50 per centum of the estimated average cost to the Office of such processing.

[(c) By the fifteenth fiscal year following the date of enactment of this Act, fees for maintaining patents in force will recover 25 per centum of the estimated cost to the Office, for the year in which such maintenance fees are received, of the actual processing all applications for patents, other than for design patents, from filing through disposition by issuance or abandonment. Fees for maintaining a patent in force will be due three years and six months, seven years and six months, and eleven years and six months after the grant of the patent. Unless payment of the applicable maintenance fee is received in the Patent and Tradmark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as the end of such grace period. The Commissioner may require the payment of a surcharge as a condition of accepting within such six-month grace period the late payment of an applicable maintenance fee.

[(d) By the first day of the first fiscal year beginning on or after one calendar year after enactment, fees for all other services or materials related to patents will recover the estimated average cost to the Office of performing the service or furnishing the material. The yearly fee for providing a library specified in section 13 of this title with uncertified printed copies of the specifications and drawings for all patents issued in that year will be $50.]

(a) The Commissioner shall charge the following fees:

1. On filing each application for an original patent, except in design or plant cases, $300; in addition, on filing or on presentation at any other time, $30 for each claim in independent form which is in excess of three, $10 for each claim (whether independent or dependent) which is in excess of twenty, and $100 for each application containing a multiple dependent claim. For the purpose of computing fees, a multiple dependent claim as referred to in section 112 of this title or any claim depending therefrom shall be considered as separate dependent claims in accordance with the number of claims to which reference is made. Errors in payment of the additional fees may be rectified in accordance with regulations of the Commissioner.

2. For issuing each original or reissue patent, except in design or plant cases, $500.

3. In design and plant cases:

a. On filing each design application, $125.

b. On filing each plant application, $200.

c. On issuing each design patent, $175.

d. On issuing each plant patent, $250.

4. On filing each application for the reissue of a patent, $300; in addition, on filing or on presentation at any other time, $30 for each claim in independent form which is in excess of the number of independent claims of the original patent, and $10 for each claim (whether independent or dependent) which is in excess of twenty and also in excess of the number of claims of the original patent. Errors in payment of the additional fees may be rectified in accordance with regulations of the Commissioner.

5. On filing each disclaimer, $50.

6. On filing an appeal from the examiner to the Board of Appeals, $115; in addition, on filing a brief in support of the appeal, $115, and on requesting an oral hearing before the Board of Appeals, $100.

7. On filing each petition for the revival of an unintentionally abandoned application for a patent or for the unintentionally delayed payment of the fee for issuing each patent, $500, unless the petition is filed under sections 133 or 151 of this title, in which case the fee shall be $50.

8. For petitions for one-month extensions of time to take actions required by the Commissioner in an application:

a. On filing a first petition, $50.

b. On filing a second petition, $100.

c. On filing a third or subsequent petition, $200.

(b) The Commissioner shall charge the following fees for maintaining a patent in force:

1. Three years and six months after grant, $400.

2. Seven years and six months after grant, $800.

3. Eleven years and six months after grant, $1,200.

Unless payment of the applicable maintenance fee is received in the Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period. The Commissioner may require the payment of a surcharge as a condition of accepting within such six-month grace period the late payment of an applicable maintenance fee. No fee will be established for maintaining a design or plant patent in force.

(c)(1) The Commissioner may accept the payment of any maintenance fee required by subsection (b) of this section after the six-month grace period if the delay is shown to the satisfaction of the Commissioner to have been unavoidable. The Commissioner may require the payment of a surcharge as a condition of accepting payment of any maintenance fee after the six-month grace period. If the Commissioner accepts payment of a maintenance fee after the six-month grace period, the patent shall be considered as not having expired at the end of the grace period.

(2) No patent, the term of which has been maintained as a result of the acceptance of a payment of a maintenance fee under this subsection, shall abridge or affect the right of any person or his successors in business who made, purchased or used after the six-month grace period but prior to the acceptance of a maintenance fee under this subsection anything protected by the patent, to continue the use of, or to sell to others to be used or sold, the specific thing so made, purchased, or used. The court before which such matter is in question may provide for the continued manufacture, use or sale of the thing made, purchased, or used as specified, or for the manufacture, use or sale of which substantial preparation was made after the six-month grace period but before the acceptance of a maintenance fee under this subsection, and it may also provide for the continued practice of any process, practiced, or for the practice of which substantial preparation was made, after the six-month grace period but prior to the acceptance of a maintenance fee under this subsection, to the extent and under such terms as the court deems equitable for the protection of investments made or business commenced after the six-month grace period but before the acceptance of a maintenance fee under the subsection.

(d) The Commissioner will establish fees for all other processing, services, or materials related to patents not specified above to recover the estimated average cost to the Office of such processing, services, or materials. The yearly fee for providing a library specified in section 13 of this title with uncertified printed copies of the specifications and drawings for all patents issued in that year will be $50.

(3) The Commissioner may waive the payment of any fee for any service or material related to patents in connection with an occasional or incidental request made by a department or agency of the Government, or any officer thereof. The Commissioner may provide any applicant issued a notice under section 132 of this title with a copy of the specifications and drawings for all patents referred to in that notice without charge.

[(f) Fees will be adjusted by the Commissioner to achieve the levels of recovery specified in this section; however, no patent application processing fee or fee for maintaining a patent in force will be adjusted more than once every three times.]

(f) The fees established in subsection (a) and (b) of this section may be adjusted by the Commissioner on Oct. 1, 1985, and every third year thereafter, to reflect any fluctuations occurring during the previous three years in the Consumer Price Index, as determined by the Secretary of Labor. Changes of less than 1 per centum may be ignored.

(g) No fee established by the Commissioner under this section will take effect prior to sixty days following notice in the Federal Register.

§42. Patent and Trademark Office funding

(a) All fees for services performed by or materials furnished by the Patent and Trademark Office will be payable to the Commissioner.

(b) All fees paid to the Commissioner and all appropriations for defraying the costs of the activities of the Patent and Trademark Office will be credited to the Patent and Trademark Office Appropriation Account in the Treasury of the United States, the provisions of section 725e of title 31, United States Code, notwithstanding.

(c) Revenues from fees will be available to the Commissioner of Patents to carry out, to the extent provided for in appropriation Acts, the activities of the Patent and Trademark Office. *Fees available to the Commissioner under section 31 of the Trademark Act of 1946, as amended (15 U.S.C. 1113), shall be used exclusively for the processing of trademark registrations and for other services and materials related to trademarks.*

(d) The Commissioner may refund any fee paid by mistake or any amount paid in excess of that required.

PART II—PATENTABILITY OF INVENTIONS AND GRANT OF PATENTS

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CHAPTER 11—APPLICATION FOR PATENT

* * * * *

[§111. Application for patent

[Application for patent shall be made by the inventor, except as otherwise provided in this title, in writing to the Commissioner. Such application shall include: (1) a specification as prescribed by section 112 of this title; (2) a drawing as prescribed by section 113 of this title; and (3) an oath by the applicant as prescribed by section 115 of this title. The application must be signed by the applicant and accompanied by the fee required by law.]

SEC. 111. Application for patent shall be made, or authorized to be made, by the inventor, except as otherwise provided in this title, in writing to the Commissioner. Such application shall include (1) a specification as prescribed by section 112 of this title; (2) a drawing as prescribed by section 113 of this title; and (3) an oath by the applicant as prescribed by section 115 of this title. The application must be accompanied by the fee required by law. The fee and oath may be submitted after the specification and any required drawing are submitted, within such period and under such conditions, including the payment of a surcharge, as may be prescribed by

the Commissioner. Upon failure to submit the fee and oath within such prescribed period, the application shall be regarded as abandoned, unless it is shown to the satisfaction of the Commissioner that the delay in submitting the fee and oath was unavoidable. The filing date of an application shall be the date on which the specification and any required drawing are received in the Patent and Trademark Office.

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§115. Oath of applicant

The applicant shall make oath that he believes himself to be the original and first inventor of the process, machine, manufacture, or composition of matter, or improvement thereof, for which he solicits a patent; and shall state of what country he is a citizen. Such oath may be made before any person within the United States authorized by law to administer oaths, or when, made in a foreign country, before any diplomatic or consular office of the United States authorized to administer oaths, or before any officer having an official seal and authorized to administer oaths in the foreign country in which the applicant may be, whose authority [shall be] *is* proved by certificate of a diplomatic or consular officer of the United States, *or apostille of an official designated by a foreign country which, by treaty or convention, accords like effect to apostilles of designated officials in the United States* and such oath shall be valid if it complies with the laws of the state or country where made. When the application is made as provided in this title by a person other than the inventor, the oath may be so varied in form that it can be made by him.

§116. [Joint inventors] *Inventors*

When an invention is made by two or more persons jointly, they shall apply for patent jointly and each sign the application and make the required oath, except as otherwise provided in this title.

If a joint inventor refuses to join in an application for patent or cannot be found or reached after diligent effort, the application may be made by the other inventor on behalf of himself and the omitted inventor. The Commissioner, on proof of the pertinent facts and after such notice to the omitted inventor as he prescribes, may grant a patent to the inventor making the application, subject to the same rights which the omitted inventor would have had if he had been joined. The omitted inventor may subsequently join in the application.

Whenever [a person is joined in an application for patent as joint inventor through error, or a joint inventor is not included in an application through error] *through error a person is named in an application for patent as the inventor, or through error an inventor is not named in an application,* and such error arose without any deceptive intention on his part, the Commissioner may permit the application to be amended accordingly, under such terms as he prescribes.

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CHAPTER 16—DESIGNS

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§173. Term of design patent

[Patents for designs may be granted for the term of three years and six months, or for seven years, or for fourteen years, as the applicant, in his application, elects.]

Patents for designs shall be granted for the term of fourteen years.

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PART III—PATENTS AND PROTECTION OF PATENT RIGHTS

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CHAPTER 25—AMENDMENT AND CORRECTION OF PATENTS

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[§256. Misjoinder of inventor

[Whenever a patent is issued on the application of persons as joint inventors and it appears that one of such persons was not in fact a joint inventor, and that he was included as a joint inventor by error and without any deceptive intention, the Commissioner may, on application of all the parties and assignees, with proof of the facts and such other requirements as may be imposed, issue a certificate deleting the name of the erroneously joined person from the patent.

[Whenever a patent is issued and it appears that a person was a joint inventor, but was omitted by error and without deceptive intention on his part, the Commissioner may, on application of all the parties and assignees, with proof of the facts and such other requirements as may be imposed, issue a certificate adding his name to the patent as a joint inventor.

[The misjoinder or nonjoinder of joint inventors shall not invalidate a patent, if such error can be corrected as provided in this section. The court before which such matter is called in question may order correction of the patent on notice and hearing of all parties concerned and the Commissioner shall issue a certificate accordingly.]

§256. Correction of named inventor

Whenever through error a person is named in an issued patent as the inventor, or through error an inventor is not named in an issued patent and such error arose without and deceptive intention on his part, the Commissioner may, on application of all the parties and assignees, with proof of the facts and such other requirements as may be imposed, issue a certificate correcting such error.

The error of omitting inventors or naming persons who are not inventors shall not invalidate the patent in which such error occurred if it can be corrected as provided in this section. The

court before which such matter is called in question may order correction of the patent on notice and hearing of all parties concerned and the Commissioner shall issue a certificate accordingly.

CHAPTER 16—OWNERSHIP AND ASSIGNMENT

* * * * *

§261. Ownership; assignment

Subject to the provisions of this title, patents shall have the attributes of personal property.

Applications for patent, patents, or any interest therein, shall be assignable in law by an instrument in writing. The applicant, patentee, or his assigns or legal representatives may in like manner grant and convey an exclusive right under his application for patent, or patents, to the whole or any specified part of the United States.

A certificate of acknowledgment under the hand and official seal of a person authorized to administer oaths within the United States, or, in a foreign country, of a diplomatic or consular officer of the United States or an officer authorized to administer oaths whose authority is proved by a certificate of a diplomatic or consular officer of the United States, *or apostille of an official designated by a foreign country which, by treaty or convention, accords like effect to apostilles of designated officials in the United States,* shall be prima facie evidence of the execution of an assignment, grant or conveyance of a patent or application for patent.

An assignment, grant or conveyance shall be void as against any subsequent purchaser or mortgagee for a valuable consideration, without notice, unless it is recorded in the Patent and Trademark Office within three months from its date or prior to the date of such subsequent purchase or mortgage.

CHAPTER 29—REMEDIES FOR INFRINGEMENT OF PATENT, AND OTHER ACTIONS

Sec.
281. Remedy for infringement of patent.

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294. Voluntary arbitration.

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§294. Voluntary arbitration

(a) A contract involving a patent or any right under a patent may contain a provision requiring arbitration of any dispute relating to patent validity or infringement arising under the contract. In the absence of such a provision, the parties to an existing patent validity or infringement dispute may agree in writing to settle such dispute by arbitration. Any such provision or agreement shall be valid, irrevocable, and enforceable, except for any grounds that exist at law or in equity for revocation of a contract.

(b) Arbitration of such disputes, awards by arbitrators and confirmation of awards shall be governed by title 9, United States Code, to the extent such title is not inconsistent with this section. In any such arbitration proceeding, the defenses provided for under section 282 of this title shall be considered by the arbitrator if raised by any party to the proceeding.

(c) An award by an arbitrator shall be final and binding between the parties to the arbitration but shall have no force or effect on any other person. The parties to an arbitration may agree that in the event a patent which is the subject matter of an award is subsequently determined to be invalid or unenforceable in a judgment rendered by a court to competent jurisdiction from which no appeal can or has been taken, such award may be modified by any court of competent jurisdiction upon application by any party to the arbitration. Any such modification shall govern the rights and obligations between such parties from the date of such modification.

(d) When an award is made by an arbitrator, the patentee, his assignee or licensee shall give notice thereof in writing to the Commissioner. There shall be a separate notice prepared for each patent involved in such proceeding. Such notice shall set forth the names and addresses of the parties, the name of the inventor, and the name of the patent owner, shall designate the number of the patent, and shall contain a copy of the award. If an award is modified by a court, the party requesting such modification shall give notice of such modification to the Commissioner. The Commissioner shall upon receipt of either notice, enter the same in the record of the prosecution of such patent. If the required notice is not filed with the Commissioner, any party to the proceeding may provide such notice to the Commissioner.

(e) The award shall be unenforceable until the notice required by subsection (d) is received by the Commissioner.

* * * * *

TRADEMARK ACT OF 1946

* * * * *

Sec. 8 (a). Duration of registration—Cancelation at end of 6 years unless affidavit of use filed

Each certificate of registration shall remain in force for 20 years: *Provided,* That the registration of any mark under the provisions of this Act shall be canceled by the Commissioner at the end of 6 years following its date, unless within 1 year next preceding the expiration of such 6 years the registrant shall file in the Patent and Trademark Office an affidavit showing that said mark is [still] in use *in commerce* or showing that its nonuse is due to special circumstances which excuse such nonuse and is not due to any intention to abandon the mark. Special notice of the requirement for such affidavit shall be attached to each certificate of registration.

Sec. 8(b). Cancelation of republished prior registrations unless affidavit of use filed

Any registration published under the provisions of subsection (c) of section 12 of this Act shall be canceled by the Commissioner at the end of 6 years after the date of such publication unless within 1 year next preceding the expiration of such 6 years and registrant shall file in the Patent and Trademark Office an affidavit showing that said marks is [still] in use *in commerce* or showing that its nonuse is due to special circumstances which excuse such nonuse and is not due to any intention to abandon the mark.

* * * * *

Sec. II. Acknowledgments and verifications

Acknowledgments and verifications required hereunder may be made before any person within the United States authorized by law to administer oaths, or, when made in a foreign country, before any diplomatic or consular officer of the United States or before any official authorized to administer oaths in the foreign country concerned whose authority [shall] *is* proved by a certificate of a diplomatic or consular officer of the United States *or apostille of an official designated by a foreign country which, by treaty or convention, accords like effect to apostilles of designated officials in the United States,* and shall be valid if they comply with the laws of the state or country where made.

* * * * *

Sec. 13. Opposition to registration of marks on the Principal Register

Any person who believes that he would be damaged by the registration of a mark upon the principal register may upon payment of the required fee, file [a verified] *an* opposition in the Patent and Trademark Office, stating the grounds therefor, within thirty days after the publication under subsection (a) of section 12 of this Act of the mark sought to be registered. Upon written request prior to the expiration of the thirty-day period, the time for filing opposition shall be extended for an additional thirty days, and further extensions of time for filing opposition may be granted by the Commissioner for good cause *when requested prior to the expiration of an extension.* The Commissioner shall notify the applicant of each extension of the time for filing opposition. [An unverified opposition may be filed by a duly authorized attorney, but such opposition shall be null and void unless verified by the opposer within a reasonable time after such filing to be fixed by the Commissioner.] An opposition may be amended under such conditions as may be prescribed by the Commissioner.

SEC. 14. A [verified] petition to cancel a registration of a mark, stating the grounds relied upon, may, upon payment of the prescribed fee, be filed by any person who believes that he is or will be damaged by the registration of a mark on the principal register established by this Act, or under the Act of Mar. 3, 1881, or the Act of Feb. 20, 1905—

(a) within five years from the date of the registration of the mark under this Act; or

(b) within five years from the date of publication under section 12(c) hereof of a mark registered under the Act of Mar. 3, 1881, or the Act of Feb. 20, 1905; or

(c) at any time if the registered mark becomes the common descriptive name of an article or substance, or has been abandoned, or its registration was obtained fraudulently or contrary to the provisions of section 4 or of subsections (a), (b), or (c) of section 2 of this Act for a registration hereunder, or contrary to similar prohibitory provisions of said prior Acts for a registration thereunder, or if the registered mark is being used by, or with the permission of, the registrant so as to misrepresent the source of the goods or services in connection with which the mark is used; or

(d) at any time if the mark is registered under the Act of Mar. 3, 1881, or the Act of Feb. 20, 1905, and has not been published under the provisions of subsection (c) of section 12 of this Act; or

(e) at any time in the case of a certification mark on the ground that the registrant (1) does not control, or is not able legitimately to exercise control over, the use of such mark, or (2) engages in the production or marketing of any goods or services to which the certification mark is applied, or (3) permits the use of the certification mark for purposes other than to certify, or (4) discriminately refuses to certify or to continue to certify the goods or services of any person who maintains the standards or conditions which such mark certifies:

Provided, That the Federal Trade Commission may apply to cancel on the grounds specified in subsections (c) and (e) of this section any mark registered on the principal register established by this Act, and the prescribed fee shall not be required.

Sec. 15. Incontestability under certin conditions of right to use mark

Except on a ground for which application to cancel may be filed at any time under subsections (c) and (e) of section 14 of this Act, and except to the extent, if any, to which the use of a mark registered on the principal register infringes a valid right acquired under the law of any State or Territory by use of a mark or trade name continuing from a date prior to the date of [the publication] *registration* under this Act of such registered mark, the right of the registrant to use such registered mark in commerce for the goods or services on or in conncection with which such registered mark has been in continuous use for 5 consecutive years subsequent to the date of such registration and is still in use in commerce, shall be incontestable: *Provided,* That—

(1) there has been no final decision adverse to registrant's claim of ownership of such mark for such goods or services, or to registrant's right to register the same or to keep the same on the register ; and

(2) there is no proceeding involving said rights pending in the Patent Office or in a court and not finally disposed of; and

(3) an affidavit is filed with the Commissioner within 1 year after the expiration of any such 5-year period setting forth those goods or services stated in the registration on or in connection with which such mark has been in continuous use for such 5 con-

secutive years and is still in use in commerce, and the other matters specified in subsections (1) and (2) hereof; and

(4) no incontestable right shall be acquired in a mark which is the common descriptive name of any article or substance, patented or otherwise.

Subject to the conditions above specified in this section, the incontestable right with reference to a mark registered under this Act shall apply to a mark registered under the Act of Mar. 3, 1881, or the Act of Feb. 20, 1905, upon the filing of the required affidavit with the Commissioner within 1 year after the expiration of any period of 5 consecutive years after the date of publication of a mark under the provisions of subsection (c) of section 12 of this Act.

The Commissioner shall notify any registrant who files the above-prescribed affidavit of the filing thereof.

Sec. 16. Interference

[Whenever application is made for the registration of a mark which so resembles a mark previously registered by another, or for the registration of which another has previously made application, as to be likely when applied to the goods or when used in connection with the services of the applicant to cause confusion or mistake or to deceive, the Commissioner may declare that an interference exists. [*Upon petition showing extraordinary circumstances, the Commissioner may declare that an interference exists when application is made for the registration of a mark which so resembles a mark previously registered by another, or for the registration of which another has previously made application, as to be likely when applied to the goods or when used in connection with the services of the applicant to cause confusion or mistake or to decieve.* No interference shall be declared between an application and the registration of a mark the right to the use of which has become incontestable.

* * * * *

§31. Fees

(a) The Commissioner of Patents will establish fees for the filing and processing of an application for the registration of a trademark or other mark and for all other services performed by and materials furnished by the Patent and Trademark Office related to trademarks and other marks. [Fees will be set and adjusted by the Commissioner to recover in aggregate 50 per centum of the estimated average cost to the Office of such processing. Fees for all other services or materials related to trademarks and other marks will recover the estimated average cost to the Office of performing the service or furnishing the material.] However, no fee for the filing or processing of an application for the registration of a trademark or other mark or for the renewal or assignment of a trademark or other mark will be adjusted more than once every three years. No fee established under this section will take effect prior to sixty days following notice in the Federal Register.

(b) The Commissioner may waive the payment of any fee for any service or material related to trademarks or other marks in connection with an occasional request made by a department or agency of the Government, or any officer thereof. The Indian Arts and Crafts Board will not be charged any fee to register Government trademarks of genuineness and quality for Indian products or for products of particular Indian tribes and groups.

* * * * *

DEPARTMENT OF COMMERCE

(49) **Patent and Trademark Office**

37 CFR Part 1

Rules of Practice in Patent Cases; Reexamination Proceedings

Agency: Patent and Trademark Office, Commerce.

Action: Final rule.

Summary: The Patent and Trademark Office is amending its rules of practice in patent cases to provide procedures for the reexamination of patents. Public Law 96–517 amended the patent act to authorize reexamination proceedings as a means for improving the quality of United States patents. The Patent and Trademark Office intends, through this amendment of its rules, to provide patent owners and the public with guidance on the procedures the Office will follow in conducting reexamination proceedings.

Date: Effective date: July 1, 1981.

For Further Information Contract: Mr. R. Franklin Burnett by telephone at [703]557-3054 or by mail marked to his attention and addressed to the Commissioner of Patents and Trademarks. Washington, D.C. 20231.

Supplementary Information: This rule change relates to a procedure for reexamination of patents as provided for in Public Law 96–517, section 1 of which relates to reexamination and becomes effective on July 1, 1981.

Background

A notice of proposed rulemaking was published in the Federal Register on Jan. 13, 1981 at 46 FR 3162–3175 and in the *Official Gazette* on Feb. 17, 1981 at 1003 O.G. 36–47.

The proposed rulemaking set forth two somewhat distinct procedures directed towards determining and improving the quality and reliability of United States patents. The procedures were (1) provisions for reexamination of patents as provided for in Pub. L. 96–517, section 1 of which relates to reexamination and becomes effective on July 1, 1981, and (2) provisions for inter partes protest proceedings in a patent application between the patent applicant and a member (or members) of the public who has (have) access to the application file.

An oral hearing was held on Apr. 16, 1981. Fifty-nine written letters and statements were submitted. Nineteen persons testified at the oral hearing which resulted in 107 pages of testimony.

Discussion of General Issues Involved

After careful consideration of the comments which have been received, the part of the proposed rulemaking relating to reexamination of patents as set forth in new Chapter 30 which Pub. L. 96–517 added to Title 35 of the United States Code [35 U.S.C. 301–307] is being adopted with certain changes. The remainder of the proposal relating to inter partes protest proceedings is not being adopted.

The comments relating to the proposed rules for inter partes protest proceedings were generally mixed, with a

majority of persons and associations submitting comments either opposed to these proposed rules or indicating that adoption of the proposed rules should be delayed or deferred for further study and consideration.

A number of comments were received requesting some further changes to the rules be made. The thrust of some of the suggested changes would be to remove public access to reissue applications and to limit public participation in the examination of reissue applications. The changes suggested included restoring the rules in these areas to essentially their pre-1977 form. In particular, it was suggested that §1.175 be amended to eliminate paragraph (a)(4). These changes were not a part of the published proposal and are not being adopted at this time. Their consideration and adoption would require a new notice of proposed rulemaking.

Further, since the subject matter of reissue applications is already known to the public the necessity for maintaining them in confidence is not compelling. The elimination of paragraph (a)(4) of §1.175 would not have a significant effect since less than one-fourth of the currently filed reissue applications are based solely upon the 1977 change to §1.175. Under the present circumstances, it is more appropriate to defer any consideration of such changes until this issue has been reviewed further and possibly until some experience is gained under the rules adopted herein relating to reexamination. Such experience may indicate the desirability of either retaining the 1977 change to §1.175, deleting the 1977 change, or making different changes in the rules.

The comments relating to reexamination were generally favorable with most of the comments indicating general approval of the proposed rules. Among the more often mentioned specific comments were suggestions relating to public notice of reexamination requests and/or orders. A number of comments also related to requester and/or third party participation in the reexamination proceeding and also to the scope of the proceeding.

After careful review of the comments and suggestions it has been decided to adopt the suggestions relating to the publication in the *Official Gazette* of requests for reexamination for which the fee has been paid. In addition, any reexaminations ordered at the initiative of the Commissioner will also be announced in the *Official Gazette*. The announcement will include at least the date of the request or any Commissioner initiated order, a reexamination request or order control number, the patent number, title, class and subclass, name of the inventor, name of the patent owner of record, and the examining group to which the reexamination is assigned.

The suggestions and comments relating to more participation in the reexamination proceeding by the requester and third parties have been adopted only to a limited degree. The requester will in general have only that participation provided by the rules as proposed. However, any citations under §1.501 by any person will be entered in the patent file up until the date of an order to reexamine. The essentially ex parte nature of the proceeding is believed to be in keeping with the spirit and intent of the statute even though the statute does not require ex parte proceedings. Ex parte proceedings will minimize the costs and other effects of reexamination requests on patentees, especially individuals and small businesses.

The scope of the reexamination proceeding which was originally proposed has been essentially adopted in the final rules. The suggestions that the rules be broadened to include other issues have not been adopted since the other issues would unduly complicate the proceedings, raise the expense of the proceedings and raise questions whether such issues can be considered under Pub. L. 96–517.

Discussion of the Major Specific Issues Involved

The rules relating to reexamination proceedings are directed to the procedures set forth in new Chapter 30 of Title 35 of the United States Code (35 U.S.C. 301–307). This Chapter provides for the citation of prior art in patents, filing of requests for reexamination, decisions on such requests, reexamination and appeal from reexamination decisions, and the issuance of a certificate at the termination of the reexamination proceedings. Present§§1.1, 1.5, 1.11, 1.33, 1.34, 1.36, 1.104, 1.107, 1.109, 1.111, 1.112, 1.113, 1.115, 1.116, 1.121, 1.191, 1.192, 1.196, 1.197, 1.231, 1.248, 1.301, and 1.303 are amended to provide for reexamination procedures. A new "Subpart D-Reexamination of Patents" includes new §§ 1.501, 1.510, 1.515, 1.520, 1.525, 1.530, 1.535, 1.540, 1.550, 1.552, 1.555, 1.560, 1.565, and 1.570. Paragraph (b) of §1.291, relating to prior art citations in patents, is deleted, since provisions therefor appear in §1.501.

Section 1.1, as amended, provides for communications relating to reexamination proceedings to be marked "Box Reexam" to speed internal Office mail processing. No comments were received concerning this section. The proposal has been modified to indicate that only requests should be marked "Box Reexam".

Section 1.5, as amended, provides for all letters relating to a reexamination proceeding to be identified by patent number and a reexamination request control number. No comments were received concerning this section. Section 1.5 has been modified to also include reference to the Group Art Unit and the examiner, if known.

Section 1.11, as amended, provides for all papers made of record in reexamination proceedings to be open to inspection and copying by the public. Eighteen comments were received relating to publication of a notice in the *Official Gazette*. A new paragraph (c) has been added which provides for the publication of requests with sufficient fees paid and orders initiated by the Commissioner. Proposed paragraph "c" has been adopted as paragraph "d".

Section 1.33, as amended, has a new paragraph (c) relating to which address communications for the patent owner will be sent and who may sign papers filed. Four comments were received on this section relating to whom the mail should be addressed. One proposal, which suggested use of the current address of the attorney or agent of record, was adopted.

Section 1.34, as amended, provides for the appointment of an attorney or agent in a reexamination proceeding. Only one comment was received on this section which proposed a rule specifically allowing attorneys to file requests without identifying their clients. Since any person may request reexamination, such a rule is not felt necessary.

Section 1.36, as amended, provides for the revocation and withdrawal of powers of attorney in a reexamination proceeding. No comment was received. Section 1.36 is adopted as proposed with an additional change which added "or her" near the end.

Section 1.104, as amended, broadens the present section to also include reexamination. Three comments were received on §1.104. All comments indicated that the examiner should not make a prior art search. Although no complete new search by the examiner is required, the use of patents and printed publications in addition to those submitted by the requester is clearly indicated in 35 U.S.C. 303(a). According, §1.104 is adopted as proposed.

Section 1.107, as amended, provides for the citation of prior art by the examiner in a reexamination proceeding. The amended rule also refers to foreign published applications, as well as patents. No comments were received on this section. It is adopted as proposed.

Section 1.109, as amended, provides for the examiner to supply reasons for allowance in a reexamination proceeding if the examiner believes that the record does not make clear the reasons for allowing a claim or claims. No comments were received on this section. Except for a clarifying change in language, it is adopted as proposed.

Section 1.111, as amended, provides for replies by the patent owner in a reexamination proceeding. One comment was received which suggested a clarification. The suggestion was adopted. Other non-substantive changes have been made in the proposed section to shorten the sentences for clarity.

Section 1.112, as amended, provides for reexamination and reconsideration of the patent under reexamination after responses by the patent owner. Three comments were received on this section.

The wording has been changed as suggested to avoid any confusion between "reexamination" and "reexamine". The sentences have also been shortened for clarity.

Section 1.113, as amended, provides for a final rejection or action in a reexamination proceeding. One comment was received which pointed out a possible conflict between the amendment rights of section 305 and the final rejection of section 1.113. No problem is seen in this regard because of the provision of section 305 which states that "reexamination will be conducted according to the procedures established for initial examination." The section is adopted as proposed with the last sentence being divided into two sentences for clarity.

Section 1.115, as amended, provides for amendments by the patent owner in a reexamination proceeding. No comments were received concerning this section. The section is adopted as proposed with minor changes for clarity.

Section 1.116, as amended, provides for amendments after final action in reexamination proceedings. One comment was received which was the same as that mentioned and responded to in Section 1.113 above. The sentences have been shortened for clarity.

Section 1.121, as amended, contains a new paragraph (f) which requires a complete copy of any new or amended claim when presented during reexamination proceedings. Two persons commented on this section. One proposed side-by-side presentation of amended and original claims. The other proposed that exactly the same procedure be used as is now in effect for amending reissue claims. Neither suggestion was adopted since neither lends itself to printing only the amended claims in a certificate as easily as the procedure set forth in §1.121(f). The proposed section was revised to also provide for the amendment of the description. In addition, the last three sentences of §1.510(e) have been inserted as the last three sentences of §1.121(f) in order to provide a more complete description therein of the manner of making amendments, including the numbering of claims, the restriction on scope of the claims and the prohibition against the introduction of new matter.

Section 1.191, as amended, provides for appeal to the Board of Appeals by the patent owner from any decision adverse to patentability, in accordance with 35 U.S.C. 306. One comment was received on proposed §1.191 which urged that the requester should also be entitled to appeal. This proposal was not adopted because it is not provided for in the law and could result in harassment if permitted. The section is adopted as proposed except that "primary" contained in the existing rule is retained.

Section 1.192, as amended, provides two months from the date of the Notice of Appeal for the patent owner to file an appeal brief in a reexamination proceeding. Five comments were received relating to §1.192 which proposed that the period for filing an appeal brief in a reexamination appeal be two months as in other appeals. The proposed rule has been adopted with the suggested two month period. The sentences have been shortened for clarity.

Section 1.196 and §1.197 are being amended to refer to "appellants", which is a term which includes both applicants and patent owners.

These two sections were not published for comment, however, the issues involved were presented in proposed§§1.191 and 1.192. Paragraph (c) of §1.197 has also been rewritten for clarity.

Section 1.231(a)(1), as amended, provides for a motion that a patent claim is unpatentable in an interference proceeding where reexamination thereof has also been requested.

Three comments were received concerning §1.231. All comments related to when interference or reexamination proceedings would be suspended. Section 1.565 provides basis for such suspensions. Decisions will be made on a case by case basis, depending on the particular fact situation. The sentences in §1.231(a)(1) have been shortened and rearranged for clarity.

An amendment was proposed to delete the last two sentences of §1.247 relating to proof of service. No comments were received concerning this section but, on reconsideration, no need for such deletion is felt necessary and no change is being adopted.

Section 1.248, as amended, includes a new paragraph (b) relating to methods of serving papers and proof of service. No comments were received concerning this section. The section is adopted as proposed with minor changes for clarity and to conform to the Federal Rules of Civil Procedure.

Section 1.291, as amended, deletes paragraph (b). Former paragraph (b) dealt with the citation of prior art provisions. It was deleted since the provisions are now covered by §1.501. Five persons commented on §1.291. One comment relating to filing protests in reexamination proceedings was not adopted since such proceedings are ex parte in nature and are limited to consideration of prior art patents and printed publications cited by the public prior to the order. Two persons mentioned providing a procedure for citation of prior art by patentees. Citation of prior art by patentees is included in §1.501. The two other comments related to the content of protest proceedings, which are not part of this final rule. Section 1.291 is adopted as proposed except that the paragraph designation of (c) is not being changed.

Section 1.301, as amended, provides for appeal by the owner of a patent in reexamination proceedings to the U.S. Court of Customs and Patent Appeals. Four comments were received relating to §1.301. One person suggested the insertion of "any" as the fourth word in the section. This suggestion was adopted. The other three comments related to appeals in inter partes protest proceedings which are not a part of this promulgation. Section 1.301 is adopted as proposed with only the above mentioned change.

Section 1.303, as amended, provides for remedy by civil action under 35 U.S.C. 145 for the owner of a patent in reexamination proceedings. No comments were received concerning this section. The changes from the proposal are the insertion of "any" as the fourth word in the section as suggested in §1.301 and the addition of, "306" to the title.

New §1.501 provides a system for citation of patents and printed publications to the Patent and Trademark Office for placement in the patent file by any person during the period of enforceability of the patent in accordance with 35 U.S.C. 301. Seventeen persons commented on §1.501. Nine comments indicated that citations should be limited to patents or printed publications. Six comments indicated that persons citing art should be required to apply it to at least one claim. Three persons held the opposite view. The final rule wording provides for citations limited to patents and printed publications where the person making the citation states the pertinency and applicability of the citation to the patent and the bearing the citation has on the patentability of at least one claim of the patent. The final rule provides that a citation made by the patent owner may include an explanation of how the claims differ from the prior art cited. Any citations which include items other than patents and printed publications will not be entered in the patent file. This does not, of course, limit in any manner the kinds and types of information which can be relied upon in protests against pending patent applications, whether such be original applications or reissue applications. Four persons stated that a separate letter requesting confidentiality should be required in cases desiring confidentiality. This provision was not considered to be necessary. One comment requested clarification of the term "period of enforceability of a patent." The meaning of this term appears to be clear since it includes any period for which recovery can be had for infringement. Under usual circumstances, this would be the term of the patent plus the six years provided by 35 U.S.C. 286. Five comments were re-

ceived relating the paragraph (c) concerning service of citations on the patent owner. The wording has been clarified. A suggestion was made that prior art copies and translations of non-English documents be required. This suggestion was not adopted since such documents are not absolutely essential until a request for reexamination has been filed. However, if the person citing the patents or printed publications desires that they be considered in any subsequent reexamination proceedings, copies and any necessary English translation should be included with the citation. A proposal was also made to charge a fee to prevent harassment. This proposal was not adopted since the mere citation of prior art is not considered to constitute harassment. A suggestion was made to change the title of the section. This suggestion was adopted in slightly modified form.

New §1.510 sets forth procedures for any person to request reexamination in accordance with 35 U.S.C. 302. Paragraph (a) of new §1.510 limits the period for such request to the period of enforceability of the patent for which the request is filed and requires payment of the fee for requesting reexamination. Paragraph (b) of new §1.510 indicates what each request for reexamination must include. Paragraph (c) of new §1.510 indicates under which conditions a request for reexamination will be considered. Paragraph (d) of new §1.510 indicates the date on which the entire fee is received will be considered to be the date of the request for reexamination. Upon reconsideration of the paragraph as proposed, it was considered more appropriate to base the filing date of the request for reexamination on the receipt of the fee for requesting reexamination rather than include other matters. Proposed paragraph (d) has been amended accordingly and is adopted. Paragraph (e) of new §1.510 covers amendments which a patent owner can propose. Such amendments can accompany a request for reexamination by the patent owner. The paragraph, with changes in wording for clarity, is adopted as proposed. A new paragraph (f) was added to clarify that requests for reexamination may be filed by attorneys or agents on behalf of a requester. Nineteen persons commented on §1.510. One person inquired as to whether confidential requests would be accepted. In response thereto, §1.510 provides that any person may file a request for reexamination. That person's name will not be maintained in confidence. One suggestion was made to permit comment and rebuttal before the decision under §1.515. No need for such a procedure is seen since the only question to be considered is whether or not a substantial new question of patentability has been raised. An opportunity for comment and rebuttal is provided after the issuance of the order. One comment was received which desired provision for supplemental requests at a reduced fee. This proposal was not adopted since it is felt that all requesters should share equally in the cost. One comment was received which proposed that duplicate copies of the request be filed in the Office so that one copy would be available for public inspection at all times. This proposal was not adopted since it would appear to create more problems than it would solve. One comment was received that only "readily available" translations should be required. It is felt that if a document is considered to be sufficiently pertinent to request reexamination, that an English translation should be provided to insure complete and proper consideration. A suggestion was made relating to paragraph (b)(5) that direct service be limited to registered patent attorneys. No need for such a restriction is seen. Various other comments relating to procedures were considered but were not adopted.

New §1.515 relates to a determination as to whether the request has presented a substantial new question of patentability under 35 U.S.C. 303. Paragraph (a) of new §1.515 requires that the determination be made within 3 months of the filing date of the request. Paragraph (b) of new §1.515 refers to the refund provisions. Paragraph (c) of new §1.515 provides for review by petition to the Commissioner of any decision refusing reexamination. Seven persons commented on §1.515. Several comments were received suggesting that the term "reexamination" should be dropped before "examiner". This proposal was adopted. Several persons requested that all art cited in the patent file at the time of the order under §1.525 be considered when deciding whether a substantial new question of patentability is presented in the request. This is possible under the provision of §1.515(a) which permits "consideration of other patents or printed publications", but is not required insofar as prior art not relied upon in the request is concerned. One person suggested that "is" be changed to-affirms-in paragraph (c). This proposal has been adopted. One commentor questioned whether a right to review was available under paragraph (c) if reexamination was ordered. No right to review exists in such a case because all claims will be reviewed in view of all prior art during the reexamination under §1.550.

New §1.520 provides for reexamination at the initiative of the Commissioner under the provisions of the last sentence of paragraph (a) of 35 U.S.C. 303. Six persons commented on §1.520. One comment was received that indicated that the section did not include a reference to patents "discovered by the Commissioner" which is contained in 35 U.S.C. 303(a). This phrase has been added to the rule. A request was made that the sentence "Normally requests from outside-will not be considered." be deleted from the rule. The sentence is being retained since the rule wording provides an easy reference for Office policy. Two comments were received that indicated a desire to have any decisions not to reexamine in Commissioner initiated situations be made part of the patent file. This proposal was not adopted since the basis for not reexamining may involve many policy issues in addition to whether a substantial new question of patentability exists in the case. If all papers in such a case would be made part of a file, it may lead to conclusions that there are no new questions of patentability when this question may not have been addressed because the reexamination was not ordered for other reasons such as little or no interest in a patent about to expire. One comment stated that the section safeguards the rights of the patentee. The language referring to the designation and delegation of authority to appropriate Patent and Trademark Office officials is deleted as unnecessary since the Commissioner's authority to designate and delegate is implicit and understood.

New §1.525 provides for ordering reexamination where a substantial new question of patentability has been found pursuant to §§1.515 or 1.520. Six comments were received relating to §1.525. One comment was made that the attorney should be able to return notices to the sender if he is unable to contact the patent owner. This topic has not been added to the rules but will be handled on a case by case basis. One comment requested that the patent owner have the option to request that the reexamination be performed by an examiner (1) other than the original examiner, or (2) other than the examiner who issued the order. Comments were also received on both sides of the question as to whether the original examiner should conduct the reexamination. In response, it would appear to be inappropriate to allow an interested party to select the examiner. Under the section, the only limitation placed on the selection of the examiner by the Office is that the same examiner whose decision was reversed on petition ordinarily will not conduct the reexamination. Paragraph (b) has been changed to provide that the notices published in the *Official Gazette* will be considered to be constructive notice.

New §1.530 relates to the statement and proposed amendments provided for in the second sentence of 35 U.S.C. 304. Amendments submitted by the patent owner cannot enlarge the scope of a claim in the patent. Amendments will not be effectively entered into the patent until the certificate under §1.570 and 35 U.S.C. 307 is issued. Nine comments were received on §1.530. Several persons felt that the patent owner should be allowed to comment before the decision under §1.515 is made. Providing for such a comment would delay the decision under §1.515 which must be made within three

months following the filing date of the request. Further, no need is seen for a statement relating to whether a new question of patentability is present since the patent owner has the opportunity to address any issues of patentability only after the first Office action. One comment questioned whether paragraph (d) also related to the description. This paragraph has been amended to clarify the matter. One person questioned whether an amendment could be filed with a statement. Paragraph (b) clearly answers this question in the affirmative. Several comments requested more time than two months for the patent owner to file a statement. In reply, the law in section 304 indicates that a reasonable period of not less than two months be provided for the patent owner's statement. If the period is too short in particular situations, extensions of time can be requested. It is felt that two months should be retained in the rule in view of the "Special Dispatch" required in reexamination cases. The proposed second sentence of paragraph (b) has not been adopted since §1.525(b) now provides for the publication of notices of the filing of all requests which are accompanied by the proper fee.

New §1.535 provides for reply by the reexamination requester to the statement under §1.530 of the patent owner and for service on the patent owner of any such reply. The last sentence of proposed §1.540 has been added as the last sentence of §1.535. Five persons commented on §1.535. Four persons indicated that the requester should be given additional opportunity to comment. The reasons for the limited participation are that it is all that is required under the law, it prevents to a great degree, harassment of a patent owner, it results in a less expensive proceeding for all parties, and it results in an earlier conclusion of the proceedings.

New §1.540 relates to the consideration of statements under §1.530 and replies under §1.535. One comment was received that the phrase "may result in their being refused" was worded too loosely. In the absence of any specific suggestion, the proposed wording is considered to be adequate and is adopted as proposed. In addition, it is appropriate that the Office retain discretion as to consideration in such cases.

New §1.550 covers the basic items relating to the conduct of reexamination proceedings. These proceedings basically follow the same procedures used for examining patent applications. The patent owner will be required to serve the reexamination requester with any response by the patent owner to the Office, in order to remove the necessity of the requester having to continuously monitor the file wrapper. Fourteen persons commented on §1.550.

Several persons commented that they felt that at least some input by third parties should be permitted. Paragraph (e) has been revised to permit third party input up until the time of the order. Several comments were received that the periods for response should be extended to be similar to those in regular application Office actions. Although problems may arise in certain cases and extensions of time may be granted, it is felt that relatively short response times are necessary in order to process reexaminations with "special dispatch." A question was raised as to the effect of failure to respond to an Office action. Paragraph (d) has been amended to clarify this matter.

New §1.552 covers the scope of reexamination in a reexamination proceeding. While it is not intended that the examiners will routinely complete a new search when conducting reexamination, the examiners will be free to, and will, very likely, conduct additional searches and cite and apply additional prior patents and publications when they consider it is appropriate and beneficial to do so. Insofar as the actual reexamination is concerned, the examination as to original patent claims is only on the basis of patents or printed publications. However, narrowed amended claims or new claims limited to the original disclosure will also be examined for compliance with other sections of the statute (35 U.S.C. 112 and 132) which are necessary in order to ensure that any amended or new claims are supported, valid, and do not introduce new matter. New §1.552 also provides that questions relating to matters other than those identified in paragraphs (a) and (b) of the section would merely be noted by the examiner as being an open question in the record. Patent owners could then file a reissue application if they wish such questions to be resolved. Ten persons commented on §1.552. Several persons commented that the question of fraud should be considered in reexamination proceedings. Comments were also received that the proceedings should be limited to patents and printed publications. The rules have been written to follow the statute which speaks only to reexamination based on patents and printed publications. Mixed comments were also received concerning the retention of the second sentence of paragraph (c). The paragraph is being adopted as proposed with the addition of a reference to the fact that the examiner will note the existence of unresolved questions in an Office action. In addition, the phrase "raised or" has been deleted from paragraph (c) as unnecessary.

New §1.555 covers the duty of disclosure by a patent owner in a reexamination proceeding involving the owner's patent. Nine persons commented on §1.555. Four persons supported placing a duty of disclosure on the patent owner. One comment was received that an oath or declaration be required of the patent owner in a reexamination so as to minimize the appearance and occurrence of any fraudulent acts and to emphasize the patentee's obligation of candor. While the suggestion for an oath or declaration has not been adopted, §1.555 does place an obligation of candor on the patent owner insofar as bringing patents or printed publications to the attention of the Office is concerned. The necessity for an oath or declaration in addition to the obligation placed on the patent owner by §1.555 is not apparent at this time. Accordingly, the suggestion has not been adopted. Two persons felt the duty of disclosure should apply to both the patent owner and requester. This proposal was not adopted since no sanction could be easily applied against the requester who violated such a rule. One person suggested broadening the duty requirements to include information in addition to patents and printed publications. Although such a practice may be desirable, no need is seen to require information under the reexamination rules which cannot be used during the reexamination. One person felt that there should be no duty of disclosure requirement in reexamination proceedings since the Office will be considering specific prior art and the presence or absence of other prior art does not seem terribly relevant. This suggestion was not adopted since the issue of patentability is not limited to the specific prior art presented and the duty to disclose is consistent with current practice under §1.56. The section is adopted as proposed except for the indication that prior art statements should be filed in accordance with §1.98. Also, the section has been divided into two sentences for clarity.

New §1.560 relates to the conduct of interviews in reexamination proceedings. Seven comments were received directed to §1.560. One comment requested elimination of interviews. This suggestion was not adopted since interviews have been found to be very helpful in resolving issues. Five comments were received which indicated that the requester should be permitted to attend all interviews. This suggestion was not adopted because of the otherwise ex parte nature of the examination. Two comments were received which indicated that interviews should be permitted before the first Office action. This suggestion was not adopted since such interviews would be held at a time when the Office has not yet taken a position on the allowability of the claims under reexamination. Section 1.560 is adopted as proposed.

New §1.565 provides for the Commissioner to determine which, if any, proceedings should be stayed, consolidated, or suspended, if concurrent proceedings involving the patent under reexamination are instituted or in progress. Four comments were received concerning§1.565. One comment pointed out the desirability of combining copending reexamination proceedings. This

concept has been accepted and a new paragraph (c) has been added to cover this matter. Two comments voiced concern over the possibility of delay resulting from stayed, suspended or combined cases. Although some delay may result, it is felt that a resolution of all issues should occur at an earlier date. Decisions as to whether to delay or combine cases will be made on a case by case basis to minimize delays and to protect the interests of all parties concerned. One comment was made to allow the patent owner to comment prior to any decision to stay proceedings by the Commissioner. The desirability of such comment will be decided on a case by case basis and is not considered desirable for placement in the rules. The addition of paragraph (c) and the insertion of "is or" before "becomes" in the first sentence of paragraph (b) are the only changes from the proposed rule.

New §1.570 concerns the issuance of the reexamination certificate under 35 U.S.C. 307 after conclusion of reexamination proceedings. The certificate will cancel any patent claims determined to be unpatentable, confirm any patent claims determined to be patentable, and incorporate into the patent any amended or new claim determined to be patentable. Three commentors mentioned §1.570. Two persons questioned the statutory authority for paragraph (d). In response to the concern for statutory authority, it is the position of the Office that once all of the claims have been canceled from the patent, the patent ceases to be enforceable for any purpose. Accordingly, any pending reissue or other Office proceeding relating to a patent in which such a certificate has been issued will be terminated. This provides a degree of assurance to the public that patents with all the claims canceled via reexamination proceedings will not again be asserted. One commentor indicated that copies of the certificate should be part of subsequently sold copies of the patent. Such a practice is intended but is not being made part of the regulations.

Environmental, energy, and other consideration: The rule change will not have a significant impact on the quality of the human environment or the conservation of energy resources.

The rule change will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act, Pub. L. 96–354).

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291.

[Text of adopted rules appears in 37 CFR. revised July 1, 1982.]

RENE D. TEGTMEYER,
May 12, 1981. *Acting Commissioner of Patents and Trademarks.*

ROBERT B. ELLERT,
May 15, 1981. *Acting Assistant Secretary for Productivity, Technology, and Innovation.*

[FR Doc. 81-14031 Filed 5-26-81; 8:45 am]

[1007 O.G. 30]

Department of Commerce

(50) **Patent and Trademark Office**
37 CFR Parts 1 & 5
[Docket No. 21223–259]
Revision of Patent Procedure

Agency: Patent and Trademark Office, Commerce
Action: Final Rule.

Summary: The Patent and Trademark Office is amending the rules of practice in patent cases, Part 1 of 37 CFR, to implement the sections of Public Law 97-247 of 1982 which become effective on Feb. 27, 1983, and to make other miscellaneous changes. The other miscellaneous changes are being made to clarify and improve the rules where appropriate. The rulemaking also is amending Part 5 of 37 CFR to establish procedures for expediting the granting of a license under 35 U.S.C. 184 permitting the filing of a patent application in a foreign country.

Effective Date: Feb. 27, 1983.

For Further Information Contact: R. Franklin Burnett by telephone at (703) 557-3054 or by mail marked to his attention and addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Supplementary Information: This rule change is designed primarily to 1) implement the changes in practice in the Patent and Trademark Office provided for in Public Law 97-247 enacted on Aug. 27, 1982; 2) clarify or rewrite certain rules; and 3) expedite the granting of licenses under 35 U.S.C. 184.

This rule change contains a number of changes in practice designed to benefit both the Patent and Trademark Office in its handling of its mission and the public the Office serves.

Certain of the changes are housekeeping in nature.

A number of final rules have already been issued to implement Public Law 97-247. A final rule on "Revision of Patent and Trademark Fees" was published on July 30, 1982 at 47 FR 33086-33112 with corrections in the printing thereof being published on Aug. 4, 1982, at 47 FR 33688 and on Aug. 5, 1982, at 47 FR 33959. The final rule was also published in the Official Gazette on Aug. 10, 1982, at 1021 O.G. 19-94. A final rule relating to definitions of "independent inventor" and "nonprofit organizations" was published on Sept. 10, 1982 at 47 FR 40134-40140 and on Sept. 21, 1982 at 1022 O.G. 29-46. A "Revision of Patent and Trademark Fees Confirmation" was published on Sept. 17, 1982 at 47 FR 41272-41283 and on Sept. 28, 1982 at 1022 O.G. 61-97. A final rule relating to the definition of "small business concern" was published on Sept. 30, 1982 at 47 FR 43272-43276 and on Oct. 19, 1982 at 1023 O.G. 23-29.

Discussion of Specific Rules and Significant Differences Between Proposed and Final Rules:

Section 1.4

Section 1.4 is amended as proposed to add a reference to Subpart D relating to citation of prior art and reexamination.

Section 1.6

Section 1.6 is amended as proposed to insert "federal" before "holidays" in paragraphs 1.6(a)-(c) in accordance with §21(b) of Title 35, United States Code, as amended by Public Law 97-247. New paragraph 1.6(d) will establish in the regulations a procedure under which papers and fees which could not be filed on a particular date because of an interruption or emergency in the United States Postal Service which is so designated by the Commissioner, may be promptly filed after the ending of such a designated interruption or emergency and be considered as having been filed on that particular date. Authority for such a practice is found in §21(a) of Title 35, United States Code, as amended by Public Law 97-247.

Section 1.7

Section 1.7 is amended as proposed to insert "federal" before "holiday" in accordance with 35 U.S.C. 21(b), as amended by Public Law 97-247.

Section 1.8

Section 1.8 is amended to remove in paragraph 1.8(a) the references to §§3.55 and 4.23, which sections were removed from the rules by the rulemaking entitled "Revision of Patent and Trademark Fees" published in the Federal Register on September 10, 1982 at 47 Fed. Reg. 40134-40140. The change in paragraph 1.8(a)(i) results from the change made in §111 of Title 35, United States Code, by Public Law 97-247. Under the revised rule, the certificate of mailing procedure would be available for filing patent oaths or declarations and filing fees. However, the certificate of mailing procedure could not be used for filing patent specifications and drawings to obtain a filing date. Such papers can be filed under new §1.10. The final rule clarifies that each paper or fee filed under §1.8 must include its own certificate of mailing. The proposed amendment to §1.8(a)(viii) referring to the Court of Appeals for the Federal Circuit rather than to

the Court of Customs and Patent Appeals, has been adopted as a final rule as published on Oct. 26, 1982 at 47 FR 47380-47382 and therefore is not republished here.

Section 1.10

Section 1.10 is amended as proposed to provide a procedure for assigning the date on which any paper or fee is deposited as "Express Mail" with the United States Postal Service as the filing date of the paper or fee in the Patent and Trademark Office. Authority for the Commissioner to establish such a procedure is provided in §21(a) of Title 35, United States Code, as amended by Public Law 97-247 for any paper or fee required to be filed in the Patent and Trademark Office. This procedure covers the filing of all documents, including patent and trademark applications, and fees since they are required to be filed in the Patent and Trademark Office for processing. Questions were raised during the public hearing and in the written comments regarding the authority of the Commissioner to promulgate §1.10 insofar as it would provide for the use of "Express Mail" to file patent and trademark applications. The argument advanced was that the amendment of 35 U.S.C. 21(a) by Public Law 97-247 did not permit the Commissioner to adopt rules whereby "Express Mail" could be used to file patent and trademark applications since such applications are not papers or fees "required to be filed in the Patent and Trademark Office." It was urged that this language of 35 U.S.C. 21(a), in conjunction with amended 35 U.S.C. 111 which states that the "filing date of an application shall be the date on which the specification and any required drawing are received in the Patent and Trademark Office," prevents adoption of proposed§1.10.

The arguments presented are not supported by the legislative history or by the literal language of the statute. Section 111 of Title 35, United States Code, before and after Public Law 97-247, requires patent applications to be made "in writing to the Commissioner." This is apparent from the first sentence of 35 U.S.C. 111 which provides that "[a]pplication for patent shall be made. . .in writing to the Commissioner." Thus, one seeking a patent is "required" to make application for the same "in writing to the Commissioner." The written application clearly constitutes a "paper or fee required to be filed in the Patent and Trademark Office." Section 21(a) of Title 35, United States Code, authorizes the Commissioner to adopt rules whereby "any paper or fee required to be filed in the Patent and Trademark Office will be considered filed in the Office on the date on which it was deposited with the United States Postal Service." The authority provided by section 21(a) extends to "any paper or fee" to which the Commissioner, by an appropriate rulemaking, so extends it. The Commissioner can, therefore, by rule, establish that "any paper or fee," including a patent or trademark application, is "filed" or "received in the Patent and Trademark Office" when it is deposited with the United States Postal Service. The terms "filed" and "received" as used in 35 U.S.C. 21(a) and 111 can therefore be given the same meaning by an appropriate rulemaking by the Commissioner.

The legislative history, H.R. Rep. No. 542, 97th Cong., 2nd Sess. 8A (1982), clearly supports the interpretation set forth herein. In discussing new subsection (a) which has been added to section 21 of Title 35, United States Code, the Report emphasizes that the authority extends to "any paper or fee which is required to be filed" in the Patent and Trademark Office. The Report specifically states that the "requirements governing whether any given paper or fee may be given the filing date of the day on which it was. . .deposited with the United States Postal Service will be set forth in regulations established by the Commissioner." Clearly no restrictions were placed by the statute or the legislative history on the types of papers or fees which the Commissioner can consider as having been filed in the Patent and Trademark Office on the date of deposit with the United States Postal Service.

The new procedure, in paragraph 1.10(a), requires the use of the "Express Mail Post Office to Addressee" service of the United States Postal Service. This service provides for the use of a mailing label on which the Post Office clearly indicates the date on which it was deposited. Paragraph 1.10(b) requires (1) that the number of the "Express Mail" mailing label be placed on each paper or fee and (2) that a certificate of mailing by "Express Mail", signed by the person mailing the paper or fee, be included on each paper or fee and state the date of deposit as "Express Mail" in the United States Postal Service. The requirement that each paper or fee have the number of the "Express Mail" mailing label and the certificate of mailing by "Express Mail" included thereon is necessary so that the Patent and Trademark Office can verify when each paper or fee was filed if questions relating thereto arise. The number and certificate must be placed on each separate paper and each fee transmittal either directly on the document or by a separate paper firmly and securely attached thereto. It is not necessary that the number and certificate be placed on each page of a particular paper or fee transmittal. Merely placing the number and certificate in one prominent location on each separate paper or fee transmittal will be sufficient.

Under new paragraph 1.10(c), the Office will accord the paper or fee the date of deposit as "Express Mail" as the filing date without further proof unless a question is present regarding the date of mailing. If, however, more than a reasonable time has elapsed between the certificate date and the Patent and Trademark Office receipt date, or if other questions regarding the date of mailing are present, new paragraph 1.10(c) provides that the person mailing the paper or fee may be required to file (1) a copy of the "Express Mail" receipt showing the actual date of mailing and (2) a statement from the person who mailed the paper or fee averring to the fact that the mailing occurred on the date certified. Such statement must be a verified statement (oath or declaration) unless made by a person registered to practice before the Patent and Trademark Office.

The certificate of mailing procedure of §1.8(a) continues to be available in addition to the proposed procedure under §1.10. The final rule (§1.10) has been changed from that proposed to allow for a reasonable time between mailing and delivery rather than only for one day since actual delivery in one day is not always provided from all areas of the country. The final rule clarifies that each paper or fee must include its own certificate of mailing by "Express Mail." This rule is being promulgated at this time so that individuals who desire to use the service may do so after the effective date.

The "Express Mail" service is seen to be preferable to other types of postal services because a readily legible mailing date is provided to both the applicant and the Patent and Trademark Office on the "Express Mail" label. Also, the labels are of uniform size and can therefore be kept on file relatively easily by the Office, if such is determined to be necessary or desirable. Registered mail and certified mail, on the other hand, provide only a postmark for the mailing date when such mail arrives in the Patent and Trademark Office and such postmarks are often illegible. Also, such mail arrives in various size envelopes which do not easily lend themselves to being filed so that the postmark may be retained. Administrative burdens including lack of certainty of mailing date and storage are considered greater for registered or certified mail than for "Express Mail." The Patent and Trademark Office will monitor closely the use of "Express Mail" by the public and may reconsider permitting the use of other forms of service provided by the United States Postal Service.

Section 1.17

Section 1.17, paragraph (h), is amended as proposed to remove the reference to §1.45 and add a reference to new §1.48 relating to the correction of inventorship in patent applications.

Section 1.22

Section 1.22 is amended to recognize that filing dates may be assigned without payment of the basic filing fee as authorized by §111 of Title 35, United States Code, as amended by Public Law 97-247. New paragraph 1.22(b) indicates that fees paid to the Office should be itemized in such a manner that the purpose for which the payment is submitted can be clearly determined by Office personnel for proper processing. The final rule includes clarification that it refers to patent and trademark fees and charges.

Section 1.24

Section 1.24 is amended as proposed to remove the reference to coupons in denominations of forty cents since coupons in this denomination are no longer necessary.

Section 1.41

Section 1.41 is amended as proposed to require in paragraph 1.14(a) that a patent be applied for in the name of the actual inventor or inventors and that the full names of the inventors be stated. Paragraph 1.41(b), as amended, clarifies the definition of the word "applicant". New paragraph 1.41(c) permits any person authorized by the applicant to file an application for patent in order to receive a filing date on behalf of the inventor or inventors, but the oath or declaration for the application must be made by all of the actual inventors in accordance with §§1.63 and 1.64. Under new paragraph 1.41(d), a showing may be required from the person initially filing an application that the filing was authorized.

Sections 1.42 and 1.43

Sections 1.42 and 1.43 are amended as proposed to remove the requirement that the legal representative sign the application papers in view of the changes in 35 U.S.C. 111, as amended by Public Law 97-247. The oath or declaration must still be signed. Several occurrences of the masculine gender in §1.42 have been removed.

Section 1.45

Section 1.45 is amended as proposed to remove present paragraphs 1.45(b) and (c) in view of new §1.48 and remove the requirement that joint inventors sign the application papers. The joint inventors are, however, still required to make the oath or declaration in accordance with new §§1.63 and 1.64.

Section 1.46

Section 1.46 is amended as proposed, with two commas being added for clarity, to permit anyone to file the application if authorized by the inventor or inventors or one of the persons mentioned in §§1.42, 1.43, or 1.47.

Section 1.47

Section 1.47 is amended as proposed to change the reference for the rule on oaths or declarations from §1.65 to §1.63.

Section 1.48

Section 1.48 adds a new section relating to correction of inventorship as authorized by §116 of Title 35, United States Code, as amended by Public Law 97-247. Under §1.48, if the correct inventor or inventors are not named in an application for patent, the application could be amended to name only the actual inventor or inventors so long as the error in the naming of the inventor or inventors occurred without any deceptive intention on the part of the actual inventor or inventors. Section 1.48 requires that the amendment be diligently made and be accompanied by (1) a petition including a statement of facts verified by the original named inventor or inventors establishing when the error without deceptive intention was discovered and how it occurred; (2) an oath or declaration by each actual inventor or inventors as required by §1.63; (3) the fee set forth in §1.17(h); and (4) the written consent of any assignee. Correction will be permitted, if diligently requested, in cases where the person originally named as inventor was in fact not the inventor of the subject matter contained in the application. If such error occurred without any deceptive intention on the part of the true inventor, the Office has the authority to substitute the true inventor for the erroneously named person. If deceptive intention was present on the part of other individuals substantively involved in the preparation or prosecution of the application their conduct will be considered and appropriate action taken under 37 CFR 1.56. Although probably rarer, instances such as changes from a mistakenly identified sole inventor to different, but actual, joint inventors; conversions from erroneously identified joint inventors to different but actual, joint inventors; and conversions from erroneously identified joint inventors to a different, but actual, sole inventor will also be permitted. In each instance, however, the Office will have to be assured of the presence of innocent error, without deceptive intention on the part of the true inventor or inventors, before permitting a substitution of a true inventor's name. The final rule language has been modified from that proposed to follow more precisely the language of the statute and the legislative history by permitting correction where the error occurred without any deceptive intention on the part of the actual inventor or inventors.

Section 1.51

Section 1.51 is amended to change the reference in paragraph (a)(2) to new §1.63 for the requirements of an oath or declaration and to change paragraph (b) with regard to the required time for filing information disclosure statements. The final rule has been modified from that proposed by eliminating the word "material" before the "information disclosure statement" and the title has been changed to substitute "a complete" for "an" to be more precise.

Section 1.52

Section 1.52 is amended as proposed to revise paragraph 1.52(c) relating to interlineations, erasures, cancellations or other alterations in application papers to specify that such changes must be made before the signing of any accompanying oath or declaration and should be dated and initialed or signed by the applicant on the same sheet of paper. Paragraph 1.52(c), as amended, prohibits making alterations in the application papers after the signing of an oath or declaration referring to such application papers. Under paragraph 1.52(c), as amended, amendments to application papers made after the signing of an oath or declaration referring to the application papers can only be made in the manner provided by §§1.121 and 1.123-1.125.

Section 1.53

Section 1.53 is amended to revise the title to indicate that the section, as amended, relates to application serial numbers, filing dates and completion of applications. Paragraph 1.53(a) indicates that a serial number is assigned to any filed application for identification purposes, even if the application is incomplete or informal. Paragraph 1.53(b) provides that a filing date is assigned to an application as of the date a specification containing a description and claim and any required drawing are filed in the Patent and Trademark Office. Although the filing fee and oath or declaration can be submitted later, no amendments can be made to the specification or drawings which will introduce new matter. This practice is authorized by 35 U.S.C. 111 as amended by Public Law 97-247. New paragraph 1.53(c) provides for notifying applicant of any application incomplete because the specification or drawing is missing and giving the applicant a time period to correct any omission. If the omission is not corrected within the time period given, the application will be returned or otherwise disposed of and a handling fee of $50.00 will be retained from any refund of a filing fee. New paragraph 1.53(d) provides that, where a filing date has been assigned to a filed specification and drawing, the applicant will be notified and be given a period of time in which to file the missing fee, oath or declaration and to pay the surcharge due. The time period the Office plans to set is one month from the date of notification by the Patent and Trademark Office, but in no case less than two months after the date of filing of the application. New paragraph 1.53(e) indicates that a patent application will not be forwarded for examination on the merits until all re-

quired parts have been received. New paragraph 1.53(f) indicates that international applications filed under the Patent Cooperation Treaty which designate the United States of America are considered to have a United States filing date under PCT Article 11(3), except as provided in 35 U.S.C. 102(e), on the date the requirements of PCT Article 11(1)(i) to (iii) are met. Paragraphs 1.53(b) and (c) have been modified from those proposed by changing the word "received" to the word "filed." The word "receipt" in paragraph 1.53(c) has also been changed to "filing". These changes have been made to ensure that the language of §1.53 cannot be considered to conflict with the use of "Express Mail" to file patent applications and obtain a filing date as of the date of deposit as "Express Mail" with the United States Postal Service.

Section 1.54

Section 1.54 is amended as proposed to designate the existing section as paragraph (a) and add a reference to §1.53. Paragraph 1.54(b) is added to indicate that applicant will be informed of the serial number and filing date of the application.

Section 1.55

Section 1.55 is amended to limit the section to claims for foreign priority by removing paragraphs (a) and (d) and redesignating paragraphs (b) and (c) as paragraphs (a) and (b). Paragraph 1.55(a) is amended to change the reference from §1.65 to new §1.63. The final rule language includes a reference to 35 U.S.C. 172 which modifies 35 U.S.C. 119 for design patents.

Section 1.56

Section 1.56 is amended to revise paragraph (c) to remove reference to signing of the application but to add reference to signing of the oath or declaration pursuant to new §1.63. Paragraph 1.56(c) has also been modified from that proposed to break it down into four items as suggested by a comment. Under paragraph 1.56(c), an application may be stricken from the files if an oath or declaration pursuant to §1.63 is signed in blank, is signed without review of the oath or declaration by the person making the oath or declaration, or is signed without the review of the specification, including the claims, as required by §1.63(b). Paragraph 1.56(c) also provides for an application to be stricken from the files if application papers filed in the Office are altered after the signing of an oath or declaration pursuant to §1.63 referring to those application papers.

Section 1.57

Section 1.57 is removed as proposed since the requirements relating to applicant's signature to the oath or declaration of the application are adequately covered in other sections.

Section 1.59

Section 1.59 is rewritten as proposed to refer to and conform with the changes proposed in §1.53.

Section 1.60

Section 1.60 is amended to require the applicant to supply a copy of the originally signed application in all cases where the §1.60 filing procedure is used. The Office will no longer prepare copies. The Office, by a separate final rule, published at 47 F.R. 47242 on October 25, 1982, has adopted a new §1.62 to provide for the filing of a file wrapper continuing application which greatly lessens the need for the Office to continue to prepare copies under §1.60. The final rule language makes clear that the statement accompanying a true copy of the parent application must be a verified statement unless made by a person registered to practice before the Office.

Section 1.62

Section 1.62 is amended to avoid inconsistency with 35 U.S.C. 111 which becomes effective on February 27, 1983. 35 U.S.C. 111 as of that date permits filing dates to be granted to patent applications without receipt of the basic filing fee, or oath or declaration. Section 1.62 is therefore being amended to permit the granting of a filing date in accordance with §111. This amendment of §1.62 is necessary to ensure compliance with 35 U.S.C. 111. The Patent and Trademark Office finds that it would be impractical not to amend §1.62 so as to grant a filing date in accordance with 35 U.S.C. 111 and not doing so might also be construed to prevent applicants from taking advantage of the provisions of 35 U.S.C. 111 authorizing the delay in the filing of the fee and oath or declaration. If §1.62 is not amended in the manner set forth in this final rule, questions may be raised as to compliance with 35 U.S.C. 111 as it will exist effective February 27, 1983. Revised paragraph 1.62(a) indicates the minimum requirements for granting of a filing date. Paragraphs 1.62(b) and (c) cover the filing fee and oath or declaration requirements, respectively. Paragraph 1.62(d) relates to later filing of the filing fee or oath or declaration as provided for in 35 U.S.C. 111. Paragraphs 1.62(e)-(i) are identical to former paragraphs 1.62(b)-(f).

Section 1.63

Section 1.63 is added to replace

1.65 relating to the required content and execution of an oath or declaration filed as a part of a patent application and is intended to state the minimum contents thereof. An applicant may, if desired, choose to include one or more additional averments in the oath or declaration such as, for example, stating that the patent is not barred under the provisions of 35 U.S.C. 102. Paragraph 1.63(a) provides that the oath or declaration, (1) be executed in accordance with §1.66 or §1.68, (2) identify the specification to which it is directed in some definite manner such as giving the title of the invention or serial number of the application, if previously filed, (3) identify each inventor and his or her residence and country of citizenship, and (4) state whether the inventor is a sole or joint inventor of the claimed invention.

Paragraph 1.63(b) further requires the oath or declaration to state that the person signing the oath or declaration (1) has reviewed and understands the contents of the identified specification, (2) believes the named inventor is the original and the first inventor, and (3) acknowledges the duty to disclose information which is material. While paragraph 1.63(b) requires the person signing the oath or declaration to review and understand the specification including the claims, it is not intended to require that such person be skilled in patent law so as to grasp the legal implications of claim language and drafting. The person must recognize, however, that what is being claimed is the subject matter which that person regards as his or her invention pursuant to 35 U.S.C. 112.

Paragraph 1.63(c) requires that any application in which a claim for foreign priority is made identify in the oath or declaration the foreign application for patent or inventor's certificate on which priority is claimed, and any foreign application having a filing date before that of the application on which priority is claimed.

Paragraph 1.63(d) requires that the oath or declaration in a continuation-in-part application, which discloses and claims subject matter in addition to that disclosed in the prior copending application, state that the person making the oath or declaration acknowledges the duty to disclose material information as defined in §1.56(a) which occurred between the filing date of the parent application and the national or PCT international filing date of the continuation-in-part application. This latter requirement is not new, but is included to serve as a reminder to the person making the oath or declaration of this duty to disclose material information such as foreign patenting, publication, or public use or sale in the United States which occurred more than one year prior to the filing date of the continuation-in-part application. For example, in circumstances where the claims of the continuation-in-part application are not fully supported by the disclosure of the parent application so as to be entitled to an earlier effective filing date under 35 U.S.C. 120, the duty o disclose extends to any material information, as defined in §1.56(a) measured from the filing date of the continuation-in-part application. This would include the first foreign patenting, and any foreign

patenting subsequent to the first which materially differs therefrom, of the subject matter of the parent application which occurred more than one year prior to the national or PCT international filing date of the continuation-in-part application. Any publication of the parent application, other than foreign patenting, or any public use or sale in the United States of the subject matter of the prior application, which occurred more than one year prior to the national or PCT international filing date of the continuation-in-part application, would also come within §1.56(a) in such circumstances. See *In re Ruscetta and Jenny*, 118 U.S.P.Q. 101 (C.C.P.A. 1958); *In re van Langenhoven*, 458 F. 2d 132, 173 U.S.P.Q. 426 (C.C.P.A. 1972), and *Chromalloy American Corp.* v. *Alloy Surfaces. Co., Inc.*, 339 F. Supp. 859, 173 U.S.P.Q. 295 (Del. 1972).

Section 1.64

Section 1.64 is added as proposed to clearly indicate who must sign the oath or declaration of a patent application.

Section 1.65

Section 1.65 is removed as proposed because the oath or declaration requirements set forth therein are covered by new §1.63.

Section 1.67

Section 1.67 is amended as proposed to remove all of paragraphs (a) and (b) and substitute therefor new wording. Paragraph 1.67(a) indicates that a supplemental oath or declaration meeting the requirements of new §1.63 may be required to correct deficiencies or inaccuracies present in an earlier oath or declaration. Paragraph 1.67(b) requires a supplemental oath or declaration to be filed (1) when a claim is presented embracing material not originally claimed and (2) when a subsequently filed oath or declaration under §1.53(d) refers to an amendment which includes improper new matter. Paragraph 1.67(b) also clearly states the prohibition against entry of new matter after the filing date of the application.

Section 1.69

Section 1.69, paragraph (b), is amended as proposed to change the time at which a translation of a non-English language oath or declaration which has not been supplied by the Office must be filed. The time period for filing the translation is changed to two months after notification that a translation is required. The reference to §1.65 in paragraph 1.69(b) is changed to §1.63.

Section 1.70

Section 1.70 is amended to refer to §1.63 for the requirements to be met when an oath or declaration is filed under 35 U.S.C. 371(c)(4). The wording of the title in the final rule is changed to reflect more clearly the subject matter of the rule.

Section 1.77

Section 1.77 is amended as proposed to change paragraphs (h) and (i) to refer to the abstract of the disclosure and signed oath or declaration, respectively.

Section 1.97

Section 1.97 is amended to change the title from "prior art statement" to "information disclosure statement". This change is appropriate since the designation "information disclosure statement" more accurately characterizes the nature and content of the information which may be included in such a statement. Information which is required to be submitted pursuant to §1.56 may ultimately be determined not to be "prior art," but nevertheless may be "material" pursuant to §1.56. Section 1.97 has also been modified from that proposed by eliminating the word "material" since information submitted pursuant to §1.97 may be considered to be of questionable materiality or may be determined, upon examination, not to be "material". Section 1.97 now provides that an information disclosure statement should be filed with the application or within the later of three months after the filing date of the application or two months after applicant receives the filing receipt. Paragraph 1.97(b) has been amended in recognition that applicant may choose to furnish other material information in another manner or statement. Paragraph 1.97(b) now also refers to section 1.56(a) for the definition of "material information". The amendments to paragraph 1.97(b) do not in any manner reduce the obligation to submit material information as defined in §1.56(a).

Section 1.98

Section 1.98 indicates that information disclosure statements should list prior art with all of the information which is required to print such citations on the front page of a patent. The final rule states clearly that the publication date indicated on the document should be submitted. This will not serve to preclude a showing of a different, actual publication date. Another purpose of the citation requirements in this section is to permit ready reference to the document from its citation.

Section 1.99

Section 1.99 is amended to change the title to be consistent with the amendment to §1.97.

Section 1.101

Section 1.101 is amended to indicate specifically that applications which are to have their examination advanced pursuant to §1.102 will be taken up for examination out of order by the examiner. The final rule is also modified to set out when international applications which have complied with the requirements of 35 U.S.C. 371(c) are taken up for action.

Section 1.118

Section 1.118 is amended as proposed to designate the previous section as new paragraph (a) and amend it to clearly state that no new matter may be introduced into an application and to make specific reference to §§1.53, 1.63 and 1.67. New paragraph 1.118(b) indicates how improper amendments which introduce new matter in the specification or claims will be handled by the examiner.

Section 1.123

Section 1.123 is amended to require all corrections to drawings to be made by bonded draftsmen at applicant's expense since the Office does not have sufficient draftsmen to make such corrections. Sketches of any desired corrections will, however, still require approval of the examiner. The final rule makes clear that changes in the drawing may be made by submission of substitute drawings.

Section 1.125

Section 1.125 is amended to relax the prohibition against substitute specifications which are not required by the examiner. The section, however, adds the requirement that any substitute specification filed must be accompanied by a statement that the substitute specification includes no new matter. Under the section the statement must be a verified statement if made by a person not registered to practice before the Office. The final rule specifies that a substitute specification may not be accepted unless it is clear to the examiner that processing of the application would be facilitated thereby.

Section 1.131

Section 1.131 is amended as proposed to refer to the use of affidavits or declarations under the section during reexamination of a patent as long as the patent upon which the rejection is based does not claim the rejected invention. Section 1.131 cannot be used to overcome a rejection based upon a United States patent claiming the rejected invention. This is true regardless of whether the rejected claims are contained in an application being examined or a patent being reexamined. Section 1.131 is inapplicable if the same invention is being claimed by the United States patent upon which the rejection is based. Under the section as amended, the same person or persons who would make the affidavit or declaration in an application will be required to make the affidavit or declaration on behalf of the owner of the patent under reexamination.

Section 1.132

Section 1.132 is amended as proposed to refer to the use of affidavits or declarations under the section during reexamination of a patent.

Section 1.137

Section 1.137 is amended as proposed to except from the provisions of paragraph (b) those applications abandoned pursuant to §1.53(d) because the fee, oath, or declaration and the surcharge were not submitted. Section 111 of Title 35, United States Code, as amended by Public Law 97-247, requires that any delay in submission of the fee and oath be shown to be unavoidable. Thus, paragraph (b) of §1.137 permitting revival where abandonment was unintentional is inapplicable to the revival of applications which become abandoned pursuant to §1.53(d).

Section 1.141

The proposed amendments to §1.141 are withdrawn infra to permit the public to study the issues involved and make any further recommendations considered appropriate.

Section 1.153

Section 1.153 is amended to change the reference for oath and declaration requirements from §1.65 to §1.63 and to conform the language of the rule to be consistent therewith.

Section 1.154

Section 1.154 is amended as proposed to revise paragraph (e) to refer to the signed oath or declaration requirements of §1.153(b).

Section 1.162

Section 1.162 is amended as proposed to change the reference from §1.65 to §1.63.

Section 1.163

Section 1.163 is amended as proposed to change the wording of the section to clearly indicate that a signed oath or declaration is required rather than a signed specification.

Section 1.172

Section 1.172 is amended to indicate clearly that the reissue oath is signed and sworn to rather than the reissue application. The final rule has been modified from that proposed by referring to a "reissue oath" rather than to "reissue oaths".

Section 1.174

Section 1.174 is amended as proposed to remove the requirement that photoprints of original drawings be securely mounted or pasted on sheets of drawing board because paper drawings are acceptable.

Section 1.175

Section 1.175 is amended as proposed to change the reference to the oath or declaration from §1.65 to §1.63.

Sections 1.301, 1.302 and 1.303

The proposed amendments to sections 1.301, 1.302 and 1.303, referring to the Court of Appeals for the Federal Circuit rather than to the Court of Customs and Patent Appeals, have been adopted as final rules as published on Oct. 26, 1982 at 47 FR 47380-47382 and corrected on Nov. 5, 1982 at 47 FR 50142 and therefore are not republished here.

Section 1.324

Section 1.324 is amended to include wording similar to that in §1.48 for correction of inventorship in applications.

Section 1.325

Section 1.325 is amended as proposed to include reference to the reexamination procedure.

Section 1.335

Section 1.335 is added as proposed to provide a new section relating to the filing in the Patent and Trademark Office of notices of arbitration awards. Such filing is required under §294 of Title 35, United States Code, as added by Public Law 97–247. The final rule has also been modified in response to a comment to indicate that the notices of arbitration awards are intended to be placed in the patent files.

Section 1.565

The proposed amendments to §1.565 are withdrawn infra to permit the public to study the issues involved and make any further recommendations considered appropriate.

Section 5.12

Section 5.12 is amended as proposed to separate the section into two paragraphs. Paragraph (a) provides that the filing of an application for an invention made in the United States is considered to include a petition for a license for foreign filing. If a license is granted, it will be indicated on the filing receipt. If it is not granted, no indication of the denial will appear. Failure to grant a license should be considered a denial of a first petition for a license. A subsequent petition may be filed under § 5.12(b). Section 5.12(b) is essentially the text of §5.12 in its previous form. No rights to file a petition for license are being removed.

Withdrawal of Proposed Amendments To Sections 1.141 and 1.565.

A number of the speakers at the public hearing held on Dec. 16, 1982, urged that the amendments to §§1.141 and 1.565 be deferred or dropped pending further study. Those urging that the proposed amendments to §1.141 not be adopted at this time included speakers from the American Patent Law Association, from Committee 103 of the American Bar Associations's Patent, Trademark & Copyright Section, and from the Bar Association of the District of Columbia. The Boston Patent Law Association urged that the amendment to §1.565 be removed or held in abeyance. The American Patent Law Association indicated that more time was needed for its committees to analyze the issues in the proposed amendments to §§1.141 and 1.565.

In response to the recommendations received at the public hearing, the proposed amendments to §§1.141 and 1.565 are being withdrawn at this time to permit the public to study the issues involved and make any further recommendations considered appropriate. Pending the further study referred to by the speakers at the hearing and consideration of any recommendations resulting therefrom, the Office will continue to operate under present §§1.141 and 1.565 as interpreted by the Manual of Patent Examining Procedure and relevant Patent and Trademark Office and judicial precedents.

Responses to Comments on the Rules

Specific comments were received on a number of the sections. All of the comments, including the written comments and the oral testimony, were considered in adopting the changes set forth herein.

Forty-eight letters presenting written comments were received and seven persons testified at the public hearing on Dec. 16, 1982.

Comments appear below along with responses thereto.

Comment:

One comment objected to inadequate notice regarding these proposed rule changes.

Reply:

The proposed rules notice was published in the Federal Register on Oct. 27, 1982. This is more than seven weeks prior to the date of the hearing and four months prior to the effective date of the final rules. Such periods are considered to be reasonable in view of the fact that the legislation requiring the rule changes was only enacted on Aug. 27, 1982 and that other rule changes were required to be implemented by Oct. 1, 1982.

Comment:

One comment proposed that "Patent and Trademark Office" should be used in the rules rather than merely "Office".

Reply:

The proposal has been adopted in the final rules in those locations where confusion may otherwise result.

Comment:

Five comments requested that promulgation of §§1.10, 1.63, 1.97, 1.141 and 1.565(e) be delayed and the period for comment extended until Mar. 30, 1983.

Reply:

Amendments to §§1.141 and 1.565 are not being pro-

mulgated at this time to provide time for further consideration and study as requested. If after study, a rule change is felt desirable, a new proposal will be issued. New §1.10 is being promulgated to make it available to applicants as it was intended in the statute. New §1.63 is being added and §1.65 deleted to reduce the formal statements required. If desired, the old oath and declaration forms may continue to be used if the statement is included that applicant "has reviewed and understands the contents of the specification, including the claims". For continuation-in-part applications, it is necessary to also include language is conformance with §1.63(d). Section 1.97 is being promulgated to remove problems relating to the time period in the current wording and to clarify the section in general.

Comment:

One person questioned why Sunday was not mentioned in §1.6(b) or (c).

Reply:

Section 1.6(b) and (c) are limited to weekdays which by definition excludes Sunday.

Comment:

Two comments were received which proposed that only a certificate of mailing procedure as in §1.8(a) be used for determining the date of deposit under 35 U.S.C. 21.

Reply:

The filing date of an application is considered to be much more critical than the filing dates of papers accepted under §1.8. The application filing date is often critical for determining if a statutory bar exists, whether foreign priority can be claimed and who is the senior party in an interference. Therefore, papers filed for purposes of receiving an application filing date should have some clear indication of the date of receipt by the United States Postal Service. Such a practice would also probably require storing all of the envelopes in the file wrapper for record purposes.

Comment:

Three comments were received which stated that private courier services should also be provided for in §1.10.

Reply:

Section 21(a) as amended by Public Law 97-247 provides for filing dates being given only when "deposited with the United States Postal Service." Although private courier services may be used to deliver papers to the Patent and Trademark Office, the actual date of receipt by the Patent and Trademark Office will be considered to be the filing date.

Comment:

A comment was received which argued that the Post Office date stamp should be stamped on the mailing label instead of having to enter the label number on each document.

Reply:

Stamping the mailing label would not add anything since the postal clerk receiving the "Express Mail" must already indicate the date and time of deposit and initial the label. A purpose of placing the label number on each paper is to permit several papers to be placed in a single envelope. The mailing labels may be retained in the Patent and Trademark Office for later verification.

Comment:

Seven comments were received that the requirement that the item be received the following day (§1.10(b)) was unnecessarily restrictive.

Reply:

Section 1.10 does not require that the item be received the next day in the Patent and Trademark Office in order to receive the date of deposit as the mailing date. The one day reference has been deleted. Further proof of mailing may be required where an unreasonable period of time is involved and supporting evidence is not otherwise available to the Patent and Trademark Office. Documents deposited with the United States Postal Service will be given a filing date which corresponds to the date of receipt indicated by the postal clerk on the "Express Mail" mailing label.

Comment:

Four comments indicated that §1.10 does not assist in placing applicants and attorneys outside the Washington area on the same footing as those in Washington.

Reply:

The main purpose of §1.10 is to implement 35 U.S.C. 21(a) in a manner which would provide for granting filing dates for papers and fees as of the date of their deposit with the United States Postal Service. Certainly these provisions using "Express Mail," together with the certificate of mailing procedure available under §1.8, will go a long way in reducing last minute deliveries to the Patent and Trademark Office by persons outside the Washington area.

Comment:

Two comments stated that the comments accompanying §1.10(c) should be clarified to explain the meaning of "more than one day."

Reply:

The final rule has been clarified.

Comment:

It was proposed by one person that the "affidavit or declaration" under §1.10(c) be waived if the statement is made by a registered attorney or agent.

Reply:

The suggestion has been adopted.

Comment:

It was indicated by one person that certified mail provides proof of mailing date under §1.10 by virtue of the Post Office stamp on the certified mail receipt card.

Reply:

The information on the certified mail receipt card is of no benefit to the Patent and Trademark Office since it is immediately returned to the sender. The Patent and Trademark Office would not be able to retain any information which gives proof of the date of mailing.

Comment:

Three comments raised questions as to the need to make the acceptance of the "Express Mail" contingent upon the performance of the Post Office in §1.10(c).

Reply:

The acceptance of the "Express Mail" is not contingent upon "next day delivery". The reference in §1.10(c) to proof of mailing merely provides a basis for the Office requiring proof of mailing where an explanation appears to be necessary to clarify the record. Such information is expected to be required only in a few instances. The rule has also been revised to clarify this matter.

Comment:

Five persons suggested the use of registered or certified U.S. mail for obtaining filing dates under 35 U.S.C. 21.

Reply:

Registered mail does not provide any information or evidence to the Patent and Trademark Office as to the date of mailing other than the postmark, which is often unreadable. Storage of envelopes containing such postmarks is also burdensome. The deficiency of certified mail has already been discussed.

Comment:

One person questioned what treatment will be accorded a paper placed in an "Express Mail" box receptacle after the box has been cleared for the last time on a given day.

Reply:

The paper will be considered to be deposited as of the date of receipt indicated on the "Express Mail" mailing label by the Postal Service clerk.

Comment:

One person commented that he found the idea of using a declaration or affidavit to establish a date of depos-

it unacceptable because it exposes the integrity of the assignment of filing dates to the risk of deception.

Reply:

The use of declarations or affidavits is usually intended to help explain activities which can be supported by exhibits. For example, if the Office copy of the mailing label was not entirely readable, applicant's copy of the "Express Mail" mailing label could accompany a declaration and serve as the basis for granting a filing date.

Comment:

Three persons objected to permitting only the individual who places the correspondence in an "Express Mail" facility to execute the certificate of express mailing under§1.10(c).

Reply:

The wording of §1.10(c) differs from §1.8 because the documents which are expected to be filed under §1.10 are patent and trademark applications. The filing dates of such documents are very important and should therefore be based on personal knowledge.

Comment:

One comment was received which suggested that § 1.10 be adopted with an effective date retroactive to a year earlier.

Reply:

Such an earlier date is not possible since the statutory authority for §1.10 does not come into effect until Feb. 27, 1983.

Comment:

One comment proposed designating the Patent and Trademark Office as an "Express Mail" Post Office to make lower rates available.

Reply:

Such a designation is not possible.

Comment:

One person requested that the Patent and Trademark Office publish a form of certificate of mailing by "Express Mail" suitable for purposes of §1.10(b).

Reply:

A suggested form is included in the preamble of this rule change.

Comment:

One comment proposed that §1.10(c) clearly state what evidence will be necessary and sufficient to prove a filing date by mailing.

Reply:

A specific answer cannot be given since it is dependent upon the particular fact situation and what evidence is actually available.

Comment:

Two comments questioned whether P.L. 97-247 authorized a rule such as §1.10 granting filing dates as of the mailing date.

Reply:

The question raised by this comment has been treated in the discussion of §1.10 supra.

Comment:

One comment proposed that §1.10 be corrected to read—Any paper or fee *required* to be filed—to more closely conform with 35 U.S.C. 21(a).

Reply:

No need is seen to change §1.10 as suggested since, if a patent is desired, it is "required" that each paper relating to an application be filed in the Patent and Trademark Office.

Comment:

One comment indicated that the requirement to place the "Express Mail" label number on each paper and fee is not realistic.

Reply:

The placement of the label number on each paper or fee allows later verification of the mailing dates of all different papers mailed in one envelope and is not seen to be overly burdensome.

Comment:

A question was raised as to whether the "Express Mail" label number should be placed on every page.

Reply:

The label number need not be placed on each page. It should, however, be placed on the first page of each separate document, such as, a new application, amendment, assignment, and transmittal letter for a fee, along with the certificate of mailing by "Express Mail". Although the label number may be on checks, such a practice is not required.

Comment:

A question was raised by one party as to the location within the Patent and Trademark Office of the mailing labels where papers to different applications are placed in the same envelope.

Reply:

The mailing labels from all "Express Mail" packages are expected to be removed and initially retained centrally in the Mail Room of the Patent and Trademark Office. The number on each document will allow direct access to the appropriate mailing label if any questions should arise.

Comment:

One comment suggested that §1.22(b) be amended to exclude itemization of all fees where a general authorization to charge a deposit account has been given.

Reply:

Even where fees are charged to a deposit account, it is desirable to know specifically which fees are to be paid. Therefore, the suggestion has not been adopted.

Comment:

One comment was received which suggested adding a sentence to §1.41(d) indicating that the filing of an oath or declaration executed by the applicant would constitute proof of authority to file the application.

Reply:

Such an additional sentence is not considered to be necessary since the Patent and Trademark Office does not intend to utilize the provisions of §1.41(d) unless a controversy arises.

Comment:

One comment was received which suggested the addition to the end of §1.42 of the words "except for patents granted to the assignee either of the inventor or of the legal representative of the inventor."

Reply:

No change is considered to be necessary since few, if any, problems have arisen without such additional wording in the past. The existing rule wording "upon proper intervention" also provides protection for assignees.

Comment:

One comment was received which indicated that §1.46 does not clearly authorize an assignee of a part interest to cause an application to be placed on file.

Reply:

Although §1.46 may not make this point clear, it is clear from §1.41(c).

Comment:

One comment recommended that the requirement to show diligence in correcting inventorship under §1.48 be deleted.

Reply:

It is felt that corrections of inventorship should be diligently made in patent applications. The naming of correct inventorship is necessary for the Patent and Trademark Office to make decisions on topics such as double patenting, priority claims and first inventorship.

Comment:

It was recommended in one comment that the verified statement of facts required by §1.48 "by the original named inventor or inventors" be replaced by a requirement that he or they merely assent to the statement of the facts since others may be better able to provide the best evidence.

Reply:
Since it is the original inventorship that is being changed, it is believed that all of the previously named inventors should positively indicate their agreement with the facts in the case. Affidavits by other individuals may also be supplied where such persons have direct personal knowledge of certain aspects of the case.

Comment:
One comment indicated that "it seems a reasonable presumption that if ownership is unaffected, deceptive intent is absent" in a §1.48 correction of inventorship situation and that such a presumption could be written into the rules.

Reply:
Even if applications are commonly owned, the wrong inventorship could be deceptively named to obtain rights which are only available to the same inventive entities. The report on Public Law 97-247 also states that "the commissioner must be assured of the presence of innocent error, without deceptive intention . . ." before permitting a substitution of a true inventor's name.

Comment:
One person suggested that the deceptive intent in §1.48 refer to the acts of the actual inventors rather than to both the alleged and actual inventor or inventors.

Reply:

This suggestion has been adopted in both §§1.48 and 1.324, but deceptive intention on the part of other parties is subject to review under §1.56.

Comment:
One person suggested that in §1.48, line 3 "may" be changed to—must—.

Reply:
The suggestion has not been adopted. Corrections may only be made if the conditions set forth in §1.48 are satisfied.

Comment:
Two comments objected to the insertion of "material" in §1.51(b).

Reply:
This word has been removed and does not appear in the final rule.

Comment:
One comment suggested changing "an" to—a complete—in the title of §1.51.

Reply:
This suggestion has been adopted.

Comment:
One comment indicated that §§1.52(c) and 1.56(c) seemed overly inflexible and harsh when considering minor grammatical changes.

Reply:
Although §1.56 indicates that applications "may" be stricken, rather than "must" be stricken, it is still considered important to maintain a clear line in the regulations against changes in the original applications made after the execution of the application oath or declaration. The line between grammatical changes and changes relating to the merits is frequently unclear.

Comment:
Three comments noted an apparent inconsistency between proposed §§1.10 and 1.53 as to whether §1.10 relates to the filing of patent applications.

Reply:
Section 1.10 does relate to the filing of patent applications. In order to clarify the wording, "received" in §1.53(b) has been changed to "filed".

Comment:
One comment was received suggesting that a sentence be added to §1.53(d) to indicate that PCT applicants cannot submit late filing fees, oaths or declarations under 35 U.S.C. 371.

Reply:
Such a reference in §1.53 does not appear appropriate because this section relates to "filing dates". In the PCT situation, the filing date was already granted at the time of filing the PCT international application.

Comment:
One comment was received which suggested that §1.53(a) be rewritten to indicate all applications are assigned serial numbers but not accorded filing dates.

Reply:
The proposal was not adopted since it is considered unnecessary.

Comment:
One person suggested that §1.53(b) be amended to specify that only "a specification *purporting* to contain a description and at least one claim . . ." is needed to obtain a filing date.

Reply:
No change is being made since a determination must be initially made as to whether or not a specification has been filed. In any case, sufficiency of the specification must later be checked by the examiner.

Comment:
One person indicated that the time period for filing a correction to a defect in an application is left entirely within the discretion of the Commissioner and that any setting of periods of time would be tantamount to an exercise of rulemaking authority. Section 1.53(d) should be provided with an explicit time limitation.

Reply:
No specific time period is considered to be necessary in the regulations. The Commissioner has full authority and discretion under the statute in 35 U.S.C. 111 to set periods of time. The statute does not require the Commissioner to use the rulemaking process to set time periods for response to an action or requirement by the Patent and Trademark Office in a patent application.

Comment:
Two comments were received objecting to the use of the words "or otherwise disposed of" in §1.53(c).

Reply:
This wording has existed in §1.53(b) in the past without objection. No need is seen to depart from this wording at this time.

Comment:
One person questioned whether the change in §1.54(b) would result in return post cards not being stamped with the application serial number.

Reply:
No change is intended in the existing return post card practice.

Comment:
One comment proposed adding another sentence to §1.154(b) indicating that foreign priority claims will be acknowledged on the filing receipt.

Reply:
This proposal is not being adopted since the examiner must determine whether the statutory requirements of 35 U.S.C. 119 have been met before an acknowledgment can be sent.

Comment:
One comment suggested that the Patent and Trademark Office indicate on the filing receipt both the filing date under §1.10 and the actual date of receipt.

Reply:
The actual date of receipt can be obtained by requesting a receipt from the Postal Service. The actual date of receipt cannot be placed on the filing receipt because of current computer limitations. The suggestion is therefore not being adopted at this time.

Comment:
One comment was received indicating that it is not clear whether or not an application based on a specification and drawing, but containing no oath or declaration or filing fee, could serve as the basis for a priority claim under 35 U.S.C. 120.

Reply:
If the filed specification and drawings fully disclose the invention as required by 35 U.S.C. 112, the application may serve as a basis for a priority claim under §120 even if no oath or declaration, or no fee has been filed, as long as the continuing application is filed prior to the abandonment of the first application under §1.53(d).

Comment:
One comment suggested that §1.55(b) be removed since the requirements of the statute are fully set forth in 35 U.S.C. 119.

Reply:
Although the statutory requirements set forth basic requirements, it is felt that the more specific details of §1.55(b) provide needed guidance for applicants.

Comment:
Two persons questioned the meaning of "inspection and review" in §1.56(c) and suggested certain amendments.

Reply:
The words "inspection and" are being removed to eliminate any redundancy. The paragraph has also been broken down into four items as proposed by a comment.

Comment:
One suggestion was made that applicant be allowed to order a copy of the parent patent, with payment of fee, when filing a §1.60 application.

Reply:
Such a practice is contrary to the intent of the rule change. The problems the Patent and Trademark Office is attempting to solve by the change, which are caused by poor copies and delays in processing, would remain with such a practice.

Comment:
Two persons suggested that §1.60 be amended to drop "and claimed" from the title.

Reply:
The suggestion has been adopted.

Comment:
One person suggested that §1.60 be modified to drop the requirement for verification by affidavit when the statement is made by a registered patent attorney or agent.

Reply:
The suggestion has been adopted.

Comment:
One comment noted that there is no specific requirement in §§1.56, 1.63 or 1.98 to identify foreign applications filed more than one year prior to the U.S. filing date.

Reply:
Section 1.63(b)(3) broadly requires applicant to acknowledge the duty to disclose information material to the examination of the application. This information includes foreign patents based on applications filed more than a year prior to the filing date of the United States application and which issue before the filing date of the United States application.

Comment:
One person felt that §1.63(b)(1) will be a disaster for the patent system since the inventor may not be physically able to review and understand the invention or because the legal language format used in claims may not be understood by the inventor. Five persons argued that adoption of §1.63 would result in raising the defense that the inventor did not understand the claims in each patent infringement suit.

Reply:
The inventor is not expected to understand all the legal interpretations or limitations in a claim. The inventor is expected to recognize that what is being claimed is the subject matter which the inventor regards as his or her invention pursuant to 35 U.S.C. 112. The physical factors have to some extent existed in past practice and have been handled on a case-by-case basis where necessary. The situation outlined would exist in any signing of a legal document. The wording of §1.63 has been explained in the preamble to minimize occurrences of problems.

Comment:
One comment noted that many inventors do not know whether additional subject matter is claimed in a continuation-in-part application under §1.63(d).

Reply:
The wording in §1.63(d) is considered to be appropriate and in accordance with case law. If uncertainty exists the attorney or agent, if any, should clarify the matter and §1.63(d) should be followed.

Comment:
One person proposed that §1.63(d) be modified to explicitly require the disclosure of foreign patents granted before the filing of the continuation-in-part application.

Reply:
Section 1.63(d) has been amended to clearly indicate that material information pursuant to §1.56(a) between the filing date of the parent application and the filing date of the continuation-in-part application must be disclosed. The discussion of new §1.63 refers to material foreign patents published during this time interval.

Comment:
Two comments indicated concern with the parenthetical language in proposed §1.63(d) in that it would create severe problems.

Reply:
Paragraph (d) of §1.63 has been amended to remove such problems.

Comment:
One comment suggested adding—he or she is aware of—after information in §1.63(b)(3) and (d).

Reply:
This suggestion is not adopted since such wording is already present in §1.56(a).

Comment:
One comment suggested that §1.63(c) clarify what is intended by "the first filed foreign application," particularly in view of 35 U.S.C. 119, third paragraph.

Reply:
The rule has been amended to clarify the matter.

Comment:
One comment was received suggesting changes be made in the title and that paragraph (b) of §1.70 refer to §1.63 instead of "this section."

Reply:
The change suggested to the title has been made. The suggestion to paragraph (b) has not been made since it is considered unnecessary.

Comment:
Three comments were received which indicated that the wording of §1.97(a) would require an immediate filing of disclosure information if the filing receipt is received just before three months after filing.

Reply:
The wording of 1.97(a) has been changed to remove this problem.

Comment:
One comment was received which urged that the title of §1.97 and contents of §1.97(b) not be changed, since the proposed wording would not require filing of the closest prior art.

Reply:
The proposed changes are not intended to make any changes in the type of information which is to be submitted to the Office. The proposal has been adopted in modified form.

Comment:
One person indicated preference for the use of "prior art" in §§1.51(b), 1.97, 1.98, and 1.99 since it does not create an inferred admission that the information submitted is material. Five comments favored the removal of

"prior art" from §1.97 but objected to the addition of "material".

Reply:

The rule change was proposed to answer arguments that the use of the term "prior art" implied that the information was a reference against applicant's invention. Since the majority of the comments supported modifying the rule, the use of the terms "prior art" as well as "material" are being dropped.

Comment:

Two comments were received concerning §1.98(a) suggesting that the "place of publication" be clarified or removed.

Reply:

This suggestion has not been adopted since the "place of publication" is not mandatory. It is intended to mean the city and country of publication. Also the citation of the "place of publication" is consistent with the §1.107(a) requirements.

Comment:

It was suggested by one person that §1.101 be amended to clarify when PCT international applications which have entered the national stage should be taken up for examination.

Reply:

An amendment has been made to §1.101 as suggested to clarify that they are taken up in order based on the date they have entered the national stage by compliance with the requirements of 35 U.S.C. 371(c).

Comment:

One comment was presented suggesting that the words "which are not examined on the merits" in §1.101 be removed.

Reply:

The suggestion has been adopted.

Comment:

One comment urged returning to the use of the Office draftsmen for minor corrections to reduce the burden under proposed §1.123.

Reply:

Some minor corrections may be made by the Office draftsmen on a time-available basis. However, since the Office currently has only a few draftsmen who are responsible for reviewing and approving all drawings, very little time is presently available for making corrections.

Comment:

Four suggestions were made to amend §1.123 to specifically provide for the filing of substitute drawings if corrections are required.

Reply:

These suggestions have been adopted.

Comment:

One comment was received indicating that §1.125 should indicate to whom it should be clear that acceptance of a substitute specification would facilitate processing.

Reply:

An amendment has been made to clarify that it should be clear to the examiner.

Comment:

One comment suggested removal of the last sentence of §1.137(b) to permit §1.183 petitions to be filed to waive time periods for requesting revival of unintentionally abandoned applications.

Reply:

No change in §1.137(b) is considered to be appropriate at this time since §1.137(b) only became effective on Oct. 1, 1982.

(Since changes to §1.141 are not being promulgated in this rule change, comments and replies to this section are not included.)

Comment:

One comment pointed out that the reference to a "period of twelve months" in §1.153 was indefinite.

Reply:

Section 1.153 has been amended to remove the indefiniteness.

Comment:

One comment was presented which suggested that §1.172 refer to a "reissue oath" rather than to "reissue oaths."

Reply:

This suggestion has been adopted.

Comment:

One comment suggested the insertion of "the filing of" before "each patent" in §1.335(a) and (b).

Reply:

The suggestion has been adopted.

(Since the proposed addition of a new paragraph (e) to §1.565 is not being adopted in this rule change, comments and replies to this section are not included.)

Comment:

One suggestion was made that a procedure be designed in which foreign filing licenses could be granted by return post card without losing the time required to send the filing receipts.

Reply:

It is felt that the procedure under §5.12 should be adopted at this time and be placed into operation. If after some experience additional modifications are found desirable, further changes could be made. To introduce several alternative procedures at this time is considered to be too complex and may endanger the success of the proposed procedure.

Comment:

One comment requested that the Office grant a prospective foreign filing license under §5.12 for all data and amendatory material to be filed abroad.

Reply:

Such petitions are not part of this proposed change but this concept is being considered in a separate rule change proposal.

Comment:

One comment suggested that the Filing Receipt specifically indicate whether or not a license has been denied under §5.12.

Reply:

The proposed practice under §5.12 would indicate on the Filing Receipt when a license is granted. On other cases in which a license is not granted further review is required. A license may still be granted at a later date.

Comment:

One comment stated that it should be possible to petition at any early date for a foreign filing license as well as obtain one on the filing receipt.

Reply:

It will still be possible to petition earlier for a license under revised §5.12.

Implementation Of Patent Procedure Revisions

The effective date of the patent procedure revisions contained in this rulemaking is Feb. 27, 1983. The various sections will be implemented in the manner set forth below:

§1.10 Filing of papers and fees by "Express Mail" with certificate.

The "Guidelines under §1.10" set forth below provide guidance in implementing §1.10:

Guidelines under §1.10

A) The certification under §1.10 requires a signature of the person depositing the paper with the United States Postal Service as "Express Mail". Specifically, if the certification under §1.10 appears on a paper that requires a signature, two signatures are required, one for the paper and one for the certification under §1.10.

B) When possible, the certification under §1.10 should appear on an upper portion of the first page of the paper being submitted. However, if there is insufficient space to make the certification on the same paper, such as in

the case of the patent issue fee transmittal form PTO-85, the certification should be on a separate sheet securely attached to the paper.

C) When the certification is presented on a separate sheet, that sheet must (1) be signed and (2) fully identify and be securely attached to the paper or fee it accompanies. The required identification should include the serial number and filing date of the application as well as the type of paper being filed, e.g., complete application, specification and drawings, responses to rejection or refusal, notice of appeal, etc. If the serial number of the application is not known, the identification should include at least the name of the inventor(s) and the title of the invention. An unsigned certification will not be considered acceptable.

Moreover, without the proper identifying data, a certification presented on a separate sheet will not be considered acceptable if there is any question or doubt concerning the connection between the sheet and the paper filed.

D) In situations wherein the correspondence includes papers for more than one application e.g., a single envelope containing separate applications or papers for various parts of the Patent and Trademark Office, each paper must have its own certification and the "Express Mail" label number as part thereof or attached thereto.

E) In situations wherein the correspondence includes several papers directed to the same application (e.g., a proposed response under 37 CFR 1.116 and a notice of appeal), each paper should also have its own certification as a part thereof or attached thereto.

F) Practitioners may place the certification language on the first page of a paper with an inked stamp. Such a practice is encouraged because the certification is not only readily visible but also forms an integral part of the paper. An example of a preferred stamp is:

"Express Mail" mailing label number _____
Date of Deposit _____

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

_____
(Typed or printed name of person mailing paper or fee)

_____
(Signature of person mailing paper or fee)

§1.48 Correction of inventorship.

Any patent application pending on or after Feb. 27, 1983, is subject to the provisions of this section.

§1.53 Serial number, filing date, and completion of application.

The provisions of this section apply to any patent application filed on or after Feb. 27, 1983.

§1.63 Oath or declaration.

The provisions of §1.63 will become effective on Feb. 27, 1983, and will apply to any oath or declaration filed on or after that date. However, in order to provide a smooth transition from the old oath or declaration requirements to the new, the Office will continue to accept between Feb. 27, 1983, and June 30, 1983, any oath or declaration in compliance with §1.65 as it existed immediately prior to Feb. 27, 1983, so long as that oath or declaration is attached to and was executed as a part of an application to be filed in the Patent and Trademark Office.

Effective July 1, 1983, all oaths or declarations filed under §1.51(a)(2) as a part of a patent application must fully comply with §1.63.

A suggested format for a declaration is set forth below:

Declaration For Patent Application

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

_____
the specification of which

(check one) ☐ is attached hereto.
☐ was filed on _____ as Application Serial No. _____ and was amended on _____ (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

			Priority Claimed	
(Number)	(Country)	(Day/Month/Year Filed)	☐ Yes	☐ No
(Number)	(Country)	(Day/Month/Year Filed)	☐ Yes	☐ No
(Number)	(Country)	(Day/Month/Year Filed)	☐ Yes	☐ No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor _____
Inventor's signature _____ _____
Date
Residence _____
Citizenship _____
Post Office Address _____ _____
Full name of second joint inventor, if any _____
Second Inventor's signature _____ _____
Date
Residence _____
Citizenship _____
Post Office Address _____ _____

(Supply similar information and signature for third and subsequent joint inventors.)

The declaration form set forth above is specifically designed for use where the specification is attached to the form and the specification and declaration are filed at one time, and also where the declaration form is filed after the specification and drawings in accordance with §1.53. The form can be used where foreign priority is claimed under 35 U.S.C. 119 and where the benefit of one or more United States applications is claimed under 35 U.S.C. 120. Appropriate modifications can be made in the form so long as compliance with the rules is maintained. For example, if the form is being used as a supplemental declaration form which is being submitted after numerous amendments the form might appropriately be modified by changing the words "was amended on" to "with amendments through."

§1.335 Filing of notice of arbitration awards.

The written notices required by this section should be directed to the attention of the Office of the Solicitor, which Office will be responsible for processing of such notices.

Other Considerations

Environmental, energy, and other considerations: The rule change will not have a significant impact on the quality of the human environment or the conservation of energy resources.

The rule change is in conformity with the requirements of the Regulatory Flexibility Act. (Pub. L. 96-354), Executive Order 12291, and the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et. seq.*

The rule change will not have a significant averse economic impact on a substantial number of small entities (Regulatory Flexibility Act. Pub. L. 96-354) for several reasons. Public Law 97-247 has taken into consideration the impact it may have on small entities. In general, the rule change will also expedite proceedings before the Patent and Trademark Office, changing existing procedures where they can be simplified.

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291. The annual effect on the economy will be less than $100 million. There will be no major increase in costs or prices for consumers, individual industries, federal, state, or local government agencies, or geographic regions. There will be no significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

This rule change will not impose a burden under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et. seq.*, since no significant additional record keeping or reporting requirements are placed upon the public. In fact, some paperwork, especially that related to foreign filing license petitions, will be reduced.

List of Subjects in 37 CFR Parts 1 and 5

Administrative practice and procedure, Courts, Inventions and patents.

Notice is hereby given that, pursuant to the authority granted to the Commissioner of Patents and Trademarks by 35 U.S.C. 6 and Public Law 97-247, the Patent and Trademark Office is amending Title 37 of the Code of Federal Regulations as set forth below.

37 CFR, Parts 1 and 5, are amended as follows:

1. Section 1.4 is amended by revising paragraph (a) to read as follows:

§1.4 Nature of correspondence.

(a) Correspondence with the Patent and Trademark Office comprises: (1) correspondence relating to services and facilities of the Office, such as general inquiries, requests for publications supplied by the Office, orders for printed copies of patents or trademark registrations, orders for copies of records, transmission of assignments for recording, and the like, and (2) correspondence in and relating to a particular application or other proceeding in the Office. See particularly the rules relating to the filing, processing, or other proceedings of national applications in Subpart B, §§1.31 to 1.352; of international applications in Subpart C, §§1.401 to 1.482; of reexamination of patents in Subpart D, §§1.501 to 1.570; and of trademark applications, §§2.11 to 2.189.

* * * * *

2. Section 1.6 is revised to read as follows:

§1.6 Receipt of letters and papers.

(a) Letters and other papers received in the Patent and Trademark Office are stamped with the date of receipt. No papers are received in the Patent and Trademark Office on Saturdays, Sundays or federal holidays within the District of Columbia.

(b) Mail placed in the Patent and Trademark Office pouch up to midnight on weekdays, excepting Saturdays and federal holidays, by the post office at Washington, D. C., serving the Patent and Trademark Office, is considered as having been received in the Patent and Trademark Office on the day it was so placed in the pouch.

(c) In addition to being mailed or delivered by hand during office hours, letters and other papers may be deposited up to midnight in a box provided at the guard's desk at the lobby of building 3 of the Patent and Trademark Office at Crystal Plaza, Arlington, Virginia and at the main entrance (14th Street) of the Department of Commerce Building, Washington, D. C., on weekdays except Saturdays and federal holidays, and all papers deposited therein are considered as received in the Patent and Trademark Office on the day of deposit.

(d) If interruptions or emergencies in the United States Postal Service which have been so designated by the Commissioner occur, the Patent and Trademark Office will consider as filed on a particular date in the Office any paper or fee which is (1) promptly filed after the ending of the designated interruption or emergency and (2) accompanied by a statement indicating that such paper or fee would have been filed on that particular date if it were not for the designated interruption or emergency in the United States Postal Service. Such statement must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office.

3. Section 1.7 is revised to read as follows:

§1.7 Times for taking action: Expiration on Saturday, Sunday or federal holiday.

Whenever periods of time are specified in this part in days, calendar days are intended. When the day, or the last day fixed by statute or by or under this part for taking any action or paying any fee in the Patent and Trademark Office falls on Saturday, Sunday, or on a federal holiday within the District of Columbia, the action may be taken, or the fee paid, on the next succeeding day which is not a Saturday, Sunday, or a federal holiday. See §1.304 for time for appeal or for commencing civil action.

4. Section 1.8 is amended by revising the introductory text of paragraph (a) and paragraph (a)(1), (a)(2) introductory text, and (a)(2)(i) to read as follows:

§1.8 Certificate of mailing.

(a) Except in the cases enumerated below, papers and fees required to be filed in the Patent and Trademark Office within a set period of time will be considered as being timely filed if: (1) they are addressed to the Commissioner of Patents and Trademarks, Washington, D. C.

20231, and deposited with the U.S. Postal Service with sufficient postage as first class mail prior to expiration of the set period, and (2) they also include a certificate for each paper or fee stating the date of deposit. The person signing the certificate should have reasonable basis to expect that the correspondence would be mailed on or before the date indicated. The actual date of receipt of the paper or fee will be used for all other purposes. This procedure does not apply to the following:

(i) The filing of a national patent application specification and drawing or other papers for the purpose of obtaining an application filing date;

* * * * *

5. A new section 1.10 is added to read as follows:

§1.10 Filing of papers and fees by "Express Mail" with certificate.

(a) Any paper or fee to be filed in the Patent and Trademark Office can be filed utilizing the "Express Mail Post Office to Addressee" service of the United States Postal Service and be considered as having been filed in the Office on the date the paper or fee is shown to have been deposited as "Express Mail" with the United States Postal Service.

(b) Any paper or fee filed by "Express Mail" must have the number of the "Express Mail" mailing label placed thereon prior to mailing, be addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231, and any such paper or fee must also include a certificate of mailing by "Express Mail" which states the date of mailing by "Express Mail" and is signed by the person mailing the paper or fee.

(c) The Patent and Trademark Office will accept the certificate of mailing by "Express Mail" and accord the paper or fee the certificate date under 35 U.S.C. 21(a) without further proof of the date on which the mailing by "Express Mail" occurred unless a question is present regarding the date of mailing. If more than a reasonable time has elapsed between the certificate date and the Patent and Trademark Office receipt date or if other questions regarding the date of mailing are present, the person mailing the paper or fee may be required to file a copy of the "Express Mail" receipt showing the actual date of mailing and a statement from the person who mailed the paper or fee averring to the fact that the mailing occurred on the date certified. Such statement must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office.

6. Section 1.17 is amended by revising paragraph (h) to read as follows:

§1.17 Patent application processing fees.

* * * * *

(h) For filing a petition to the Commissioner under a section of this part listed below which refers to this paragraph—$120.00

—§1.47—for filing by other than all the inventors or a person not the inventor
—§1.48—for correction of inventorship
—§1.182–for decision on questions not specifically provided for
—§1.183–to suspend the rules
—§1.268–for late filing of interference settlement agreement

* * * * *

7. Section 1.22 is revised to read as follows:

§1.22 Fees payable in advance.

(a) Patent and trademark fees and charges payable to the Patent and Trademark Office are required to be paid in advance, that is, at the time of requesting any action by the Office for which a fee or charge is payable with the exception that under §1.53 applications for patent may be assigned a filing date without payment of the basic filing fee.

(b) All patent and trademark fees paid to the Patent and Trademark Office should be itemized in each individual application, patent or other proceeding in such a manner that it is clear for which purpose the fees are paid.

8. Section 1.24 is revised to read as follows:

§1.24 Coupons.

Coupons in denominations of one dollar are sold by the Patent and Trademark Office for the convenience of regular purchasers of U.S. patents and trademark registrations; these coupons may not be used for any other purpose. The one dollar coupons are sold individually and in books of 50 with stubs for record for $50. These coupons are good until used; they may be transferred but cannot be redeemed.

9. Section 1.41 is revised to read as follows:

§1.41 Applicant for patent.

(a) A patent must be applied for in the name of the actual inventor or inventors. Full names must be stated, including the family name and at least one given name without abbreviation together with any other given name or initial.

(b) Unless the contrary is indicated the word "applicant" when used in these sections refers to the inventor or joint inventors who are applying for a patent, or to the person mentioned in §§1.42, 1.43, or 1.47 who is applying for a patent in place of the inventor.

(c) Any person authorized by the applicant may file an application for patent on behalf of the inventor or inventors, but an oath or declaration for the application (§1.63) can only be made in accordance with §1.64.

(d) A showing may be required from the person filing the application that the filing was authorized where such authorization comes into question.

10. Section 1.42 is revised to read as follows:

§1.42 When the inventor is dead.

In case of the death of the inventor, the legal representative (executor, administrator, etc.) of the deceased inventor may make the necessary oath or declaration, and apply for and obtain the patent. Where the inventor dies during the time intervening between the filing of the application and the granting of a patent thereon, the letters patent may be issued to the legal representative upon proper intervention.

11. Section 1.43 is revised to read as follows:

§1.43 When the inventor is insane or legally incapacitated.

In case an inventor is insane or otherwise legally incapacitated, the legal representative (guardian, conservator, etc.) of such inventor may make the necessary oath or declaration, and apply for and obtain the patent.

12. Section 1.45 is amended by removing paragraphs (b) and (c) and the designation (a) to the first paragraph and by revising the text to read as follows:

§1.45 Joint inventors.

Joint inventors must apply for a patent jointly and each must make the required oath or declaration: neither of them alone, nor less than the entire number, can apply for a patent for an invention invented by them jointly, except as provided in §1.47.

13. Section 1.46 is revised to read as follows:

§1.46 Assigned inventions and patents.

In case the whole or a part interest in the invention or in the patent to be issued is assigned, the application must still be made or authorized to be made, and an oath or declaration signed, by the inventor or one of the persons mentioned in §§1.42, 1.43, or 1.47. However, the patent may be issued to the assignee or jointly to the inventor and the assignee as provided in §1.334.

14. Section 1.47 is revised to read as follows:

§1.47 Filing when an inventor refuses to sign or cannot be reached.

(a) If a joint inventor refuses to join in an application for patent or cannot be found or reached after diligent effort, the application may be made by the other inventor on behalf of himself or herself and the omitted inventor. The oath or declaration in such an application must be accompanied by a petition including proof of

the pertinent facts and by the required fee (§1.17(h)) and must state the last known address of the omitted inventor. The Patent and Trademark Office shall forward notice of the filing of the application to the omitted inventor at said address. Should such notice be returned to the Office undelivered, or should the address of the omitted inventor be unknown, notice of the filing of the application shall be published in the *Official Gazette*. The omitted inventor may subsequently join in the application on filing an oath or declaration of the character required by §1.63. A patent may be granted to the inventor making the application, upon a showing satisfactory to the Commissioner, subject to the same rights which the omitted inventor would have had if he or she had been joined.

(b) Whenever an inventor refuses to execute an application for patent, or cannot be found or reached after diligent effort, a person to whom the inventor has assigned or agreed in writing to assign the invention or who otherwise shows sufficient proprietary interest in the matter justifying such action may make application for patent on behalf of and as agent for the inventor. The oath or declaration in such an application must be accompanied by a petition including proof of the pertinent facts and a showing that such action is necessary to preserve the rights of the parties or to prevent irreparable damage, and by the required fee (§1.17(h)) and must state the last known address of the inventor. The assignment, written agreement to assign or other evidence of proprietary interest, or a verified copy thereof, must be filed in the Patent and Trademark Office. The Office shall forward notice of the filing of the application to the inventor at the address stated in the application. Should such notice be returned to the Office undelivered, or should the address of the inventor be unknown, notice of the filing of the application shall be published in the *Official Gazette*. The inventor may subsequently join in the application on filing an oath or declaration of the character required by §1.63. A patent may be granted to the inventor upon a showing satisfactory to the Commissioner.

15. A new section 1.48 is added to read as follows:

§1.48 Correction of inventorship.

If the correct inventor or inventors are not named in an application for patent through error without any deceptive intention on the part of the actual inventor or inventors, the application may be amended to name only the actual inventor or inventors. Such amendment must be diligently made and must be accompanied by (1) a petition including a statement of facts verified by the original named inventor or inventors establishing when the error without deceptive intention was discovered and how it occurred; (2) an oath or declaration by each actual inventor or inventors as required by §1.63; (3) the fee set forth in §1.17(h); and (4) the written consent of any assignee.

16. Section 1.51 is amended by revising paragraphs 1.51(a)(2) and (b) to read as follows:

§1.51 General requisites of a complete application.

(a) * * * * *

(2) An oath or declaration, see §§1.63 and 1.68.

* * * * *

(b) Applicants are encouraged to file an information disclosure statement. See §§1.97 through 1.99.

17. Section 1.52 is amended by revising paragraph (c) to read as follows:

§1.52 Language, paper, writing, margins.

* * * * *

(c) Any interlineation, erasure, cancellation or other alteration of the application papers filed must be made before the signing of any accompanying oath or declaration pursuant to §1.63 referring to those application papers and should be dated and initialed or signed by the applicant on the same sheet of paper. No such alterations in the application papers are permissible after the signing of an oath or declaration referring to those application papers (§1.56(c)). After the signing of the oath or declaration referring to the application papers, amendments may only be made in the manner provided by §§1.121 and 1.123–1.125.

* * * * *

18. Section 1.53 is revised to read as follows:

§1.53 Serial number, filing date, and completion of application.

(a) Any application for a patent received in the Patent and Trademark Office will be assigned a serial number for identification purposes.

(b) The filing date of an application for patent is the date on which (1) a specification containing a description pursuant to §1.71 and at least one claim pursuant to §1.75, and (2) any drawing required by §1.81(a), are filed in the Patent and Trademark Office. No new matter may be introduced into an application after its filing date (§1.118).

(c) If any application is filed without the specification or drawing required by paragraph (b) of this section, applicant will be so notified and given a time period within which to submit the omitted specification or drawing in order to obtain a filing date as of the date of filing of such submission. If the omission is not corrected within the time period set, the application will be returned or otherwise disposed of; the fee, if submitted, will be refunded less a $50.00 handling fee.

(d) If an application which has been accorded a filing date pursuant to paragraph (b) of this section does not include the appropriate filing fee or an oath or declaration by the applicant, applicant will be so notified and given a period of time within which to file the fee, oath, or declaration and to pay the surcharge as set forth in §1.16(e) in order to prevent abandonment of the application. The notification pursuant to this paragraph may be made simultaneously with any notification pursuant to paragraph (c) of this section.

(e) An application for a patent will not be placed upon the files for examination until all its required parts, complying with the rules relating thereto, are received, except that certain minor informalities may be waived subject to subsequent correction whenever required.

(f) The filing date of an international application designating the United States of America shall be treated as the filing date in the United States of America under PCT Article 11(3), except as provided in 35 U.S.C. 102(e).

19. Section 1.54 is revised to read as follows:

§1.54 Parts of application to be filed together; filing receipt.

(a) It is desirable that all parts of the complete application be deposited in the Office together; otherwise a letter must accompany each part, accurately and clearly connecting it with the other parts of the application. See §1.53 with regard to completion of an application.

(b) Applicant will be informed of the application serial number and filing date by a filing receipt.

20. Section 1.55 is revised to read as follows:

§1.55 Claim for foreign priority.

(a) An applicant may claim the benefit of the filing date of a prior foreign application under the conditions specified in 35 U.S.C. 119 and 172. The claim to priority need be in no special form and may be made by the attorney or agent if the foreign application is referred to in the oath or declaration as required by §1.63. The claim for priority and the certified copy of the foreign application specified in the second paragraph of 35 U.S.C. 119 must be filed in the case of interference (§1.224); when necessary to overcome the date of a reference relied upon by the examiner; or when specifically required by the examiner; and in all other cases they must be filed not later than the date the issue fee is paid. If the papers filed are not in the English language, a translation need not be filed except in the three particular instances specified in the preceding sentence, in

which event a sworn translation or a translation certified as accurate by a sworn or official translator must be filed. If the priority papers are submitted after the date the issue fee is paid, they must be accompanied by a petition requesting their entry and the fee set forth in §1.17(i).

(b) An applicant may under certain circumstances claim priority on the basis of an application for an inventor's certificate in a country granting both inventor's certificates and patents. When an applicant wishes to claim the right of priority as to a claim or claims of the application on the basis of an application for an inventor's certificate in such a country under 35 U.S.C. 119, last paragraph (as amended July 28, 1972), the applicant or his attorney or agent, when submitting a claim for such right as specified in paragraph (b) of this section, shall include an affidavit or declaration including a specific statement that, upon an investigation, he or she has satisfied himself or herself that to the best of his or her knowledge the applicant, when filing his or her application for the inventor's certificate, had the option to file an application either for a patent or an inventor's certificate as to the subject matter of the identified claim or claims forming the basis for the claim of priority.

21. Section 1.56 is amended by revising paragraph (c) to read as follows:

§1.56 Duty of disclosure; fraud; striking or rejection of applications.

* * * * *

(c) Any application may be stricken from the files if:

(1) An oath or declaration pursuant to §1.63 is signed in blank;

(2) An oath or declaration pursuant to §1.63 is signed without review thereof by the person making the oath or declaration;

(3) An oath or declaration pursuant to §1.63 is signed without review of the specification, including the claims, as required by §1.63(b);

or

(4) The application papers filed in the Office are altered after the signing of an oath or declaration pursuant to §1.63 referring to those application papers.

* * * * *

§1.57 [Removed]

22. Section 1.57 is removed.

23. Section 1.59 is revised to read as follows:

§1.59 Papers of application with filing date not to be returned.

Papers in an application which has received a filing date pursuant to §1.53 will not be returned for any purpose whatever. If applicants have not preserved copies of the papers, the Office will furnish copies at the usual cost.

24. Section §1.60 is revised to read as follows:

§1.60 Continuation or divisional application for invention disclosed in a prior application.

A continuation or divisional application (filed under the conditions specified in 35 U.S.C. 120 or 121), which discloses and claims only subject matter disclosed in a prior application may be filed as a separate application before the patenting or abandonment of or termination of proceedings on the prior application. Signing and execution of the application papers by the applicant may be omitted provided the copy is supplied by and accompanied by a statement by, the applicant or his or her attorney or agent that the application papers comprise a true copy of the prior application as filed. Such statement must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office. Only amendments reducing the number of claims or adding a reference to the prior application (§1.78(a)) will be entered before calculating the filing fee and granting the filing date.

25. Section §1.62 is revised to read as follows:

§1.62 File wrapper continuing procedure.

(a) A continuation, continuation-in-part, or divisional application, which uses the specification and drawings from a prior application to be abandoned, may be filed before the payment of the issue fee, abandonment of, or termination of proceedings on a prior application. The filing date of an application filed under this section is the date on which a request is filed for an application under this section including identification of the Serial Number, filing date, and applicant's name of the prior application.

(b) The filing fee for a continuation, continuation-in-part, or divisional application under this section is based on the number of claims remaining in the application after entry of any preliminary amendment and entry of any amendments under §1.116 unentered in the prior application which applicant has requested to be entered in the continuing application.

(c) In the case of a continuation-in-part application which adds and claims additional disclosure by amendment, an oath or declaration as required by §1.63 must also be filed. In a continuation or divisional application which discloses and claims only subject matter disclosed in a prior application, no additional oath or declaration is required.

(d) If an application which has been accorded a filing date pursuant to paragraph (a) of this section does not include the appropriate filing fee pursuant to paragraph (b) of this section, or an oath or declaration by the applicant in the case of a continuation-in-part application pursuant to paragraph (c) of this section, applicant will be so notified and given a period of time within which to file the fee, oath, or declaration and to pay the surcharge as set forth in §1.16(e) in order to prevent abandonment of the application. The notification pursuant to this paragraph may be made simultaneously with any notification of a defect pursuant to paragraph (a) of this section.

(e) An application filed under this section will utilize the file wrapper and contents of the prior application to constitute the new continuation, continuation-in-part, or divisional application but will be assigned a new application serial number.

(f) The filing of an application under this section will be construed to include a waiver of secrecy by the applicant under 35 U.S.C. 122 to the extent that any member of the public who is entitled under the provisions of 37 CFR 1.14 to access to, or information concerning either the prior application or any continuing application filed under the provisions of this section may be given similar access to, or similar information concerning, the other application(s) in the file wrapper.

(g) The filing of a request for a continuing application under this section will be considered to be a request to expressly abandon the prior application as of the filing date granted the continuing application.

(h) The applicant is urged to furnish the following information relating to the prior application to the best of his or her ability:

(1) Title as originally filed and as last amended;

(2) Name of applicant as originally filed and as last amended;

(3) Current correspondence address of applicant;

(4) Identification of prior foreign application and any priority claim under 35 U.S.C. 119.

(i) Envelopes containing only application papers and fees for filing under this section should be marked "Box FWC".

26. A new section 1.63 is added to read as follows:

§1.63 Oath or declaration.

(a) An oath or declaration filed under §1.51(a)(2) as a part of an application must:

(1) Be executed in accordance with either §1.66 or §1.68;

(2) Identify the specification to which it is directed;

(3) Identify each inventor and the residence and country of citizenship of each inventor; and

(4) State whether the inventor is a sole or joint inventor of the invention claimed.

(b) In addition to meeting the requirements of paragraph (a), the oath or declaration must state that the person making the oath or declaration:

(1) Has reviewed and understands the contents of the specification, including the claims, as amended by any amendment specifically referred to in the oath or declaration;

(2) Believes the named inventor or inventors to be the original and first inventor or inventors of the subject matter which is claimed and for which a patent is sought; and

(3) Acknowledges the duty to disclose information which is material to the examination of the application in accordance with §1.56(a).

(c) In addition to meeting the requirements of paragraphs (a) and (b) of this section, the oath or declaration in any application in which a claim for foreign priority is made pursuant to §1.55 must identify the foreign application for patent or inventor's certificate on which priority is claimed, and any foreign application having a filing date before that of the application on which priority is claimed, by specifying the application number, country, day, month and year of its filing.

(d) In any continuation-in-part application filed under the conditions specified in 35 U.S.C. 120 which discloses and claims subject matter in addition to that disclosed in the prior copending application, the oath or declaration must also state that the person making the oath or declaration acknowledges the duty to disclose material information as defined in §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

27. A new section 1.64 is added to read as follows:

§1.64 Person making oath or declaration.

(a) The oath or declaration must be made by all of the actual inventors except as provided for in §§1.42, 1.43, or 1.47.

(b) If the person making the oath or declaration is not the inventor (§§1.42, 1.43, or 1.47), the oath or declaration shall state the relationship of the person to the inventor and, upon information and belief, the facts which the inventor is required to state.

§1.65 [Removed]

28. Section 1.65 is removed.

29. Section 1.67 is revised to read as follows:

§1.67 Supplemental oath or declaration.

(a) A supplemental oath or declaration meeting the requirements of §1.63 may be required to be filed to correct any deficiencies or inaccuracies present in an earlier filed oath or declaration.

(b) A supplemental oath or declaration meeting the requirements of §1.63 must be filed (1) when a claim is presented for matter originally shown or described but not substantially embraced in the statement of invention or claims originally presented, and (2) when an oath or declaration submitted in accordance with §1.53(d) after the filing of the specification and any required drawings specifically and improperly refers to an amendment which includes new matter. No new matter may be introduced into an application after its filing date even if a supplemental oath or declaration is filed (§1.53(b); §1.118). In proper cases the oath or declaration here required may be made on information and belief by an applicant other than inventor.

30. Section 1.69 is amended by revising paragraph (b) to read as follows:

§1.69 Foreign language oaths and declarations.

* * * * *

(b) Unless the text of any oath or declaration in a language other than English is a form provided or approved by the Patent and Trademark Office, it must be accompanied by a verified English translation, except that in the case of an oath or declaration filed under §1.63, the translation may be filed in the Office no later than two months from the date applicant is notified to file the translation.

31. Section 1.70 is amended by revising the title and paragraph (a) to read as follows:

§1.70 Oath or declaration under 35 U.S.C. 371(c)(4).

(a) When an applicant of an international application, if the inventor, desires to enter the national stage under 35 U.S.C. 371, he or she must file an oath or declaration in accordance with §1.63.

* * * * *

32. Section 1.77 is amended by revising paragraphs (h) and (i) to read as follows:

§1.77 Arrangement of application elements.

* * * * *

(h) Abstract of the disclosure.

(i) Signed oath or declaration.

* * * * *

33. The center heading preceding §1.97 and section 1.97 are revised to read as follows:

INFORMATION DISCLOSURE STATEMENT

§1.97 Filing of information disclosure statement.

(a) As a means of complying with the duty of disclosure set forth in §1.56, applicants are encouraged to file an information disclosure statement at the time of filing the application or within the later of three months after the filing date of the application or two months after applicant receives the filing receipt. If filed separately, the disclosure statement should, in addition to the identification of the application, include the Group Art Unit to which the application is assigned as indicated on the filing receipt. The disclosure statement may either be separate from the specification or may be incorporated therein.

(b) A disclosure statement filed in accordance with paragraph (a) of this section shall not be construed as a representation that a search has been made or that no other material information as defined in §1.56(a) exists.

34. Section 1.98 is amended by revising the title and paragraph (a) to read as follows:

§1.98 Content of information disclosure statement.

(a) Any disclosure statement filed under §1.97 or §1.99 shall include: (1) A listing of patents, publications or other information and (2) a concise explanation of the relevance of each listed item. The disclosure statement shall be accompanied by a copy of each listed patent or publication or other item of information in written form or of at least the portions thereof considered by the person filing the disclosure statement to be pertinent. All United States patents listed should be identified by their patent numbers, patent dates and names of the patentees. Each foreign published application or patent should be cited by identifying the country or office which issued it, the document number and publication date indicated on the document. Each printed publication should be identified by author (if any), title of the publication, pages, date and place of publication.

* * * * *

35. Section 1.99 is revised to read as follows:

§1.99 Updating of information disclosure statement.

If prior to issuance of a patent an applicant, pursuant to his or her duty of disclosure under §1.56, wishes to bring to the attention of the Office additional patents, publications or other information not previously submitted, the additional information should be submitted to the Office with reasonable promptness. It may be included in a supplemental information disclosure statement or may be incorporated into other communications to be considered by the examiner. Any transmittal of additional information shall be accompanied by explanations of relevance and by copies in accordance with the requirements of §1.98.

36. Section 1.101 is amended by revising paragraph (a) to read as follows:

§1.101 Order of examination.

(a) Applications filed in the Patent and Trademark Office and accepted as complete applications are assigned for examination to the respective examining groups hav-

ing the classes of inventions to which the applications relate. Applications shall be taken up for examination by the examiner to whom they have been assigned in the order in which they have been filed except for those applications in which examination has been advanced pursuant to §1.102 and those applications in which the Office has accepted a request for waiver of patent rights filed under §1.139. International applications which have complied with the requirements of 35 U.S.C. 371(c) will be taken up for action based on the date on which such requirements were met. However, unless a request has been filed under 35 U.S.C. 371(f), no action may be taken prior to 21 months from the priority date.

* * * * *

37. Section 1.118 is revised to read as follows:

§1.118 Amendment of disclosure.

(a) No amendment shall introduce new matter into the disclosure of an application after the filing date of the application §1.53(b)). All amendments to the specification, including the claims, and the drawings filed after the filing date of the application must conform to at least one of them as it was at the time of the filing of the application. Matter not found in either, involving a departure from or an addition to the original disclosure, cannot be added to the application after its filing date even though supported by an oath or declaration in accordance with §1.63 or §1.67 filed after the filing date of the application.

(b) If it is determined that an amendment filed after the filing date of the application introduces new matter, claims containing new matter will be rejected and deletion of the new matter in the specification and drawings will be required even if the amendment is accompanied by an oath or declaration in accordance with §1.63 or §1.67.

38. Section 1.123 is revised to read as follows:

§1.123 Amendments to the drawing.

No change in the drawing may be made except by permission of the Office. Permissible changes in the construction shown in any drawing may be made only by bonded draftsmen, at applicant's expense, or by the submission of substitute drawings by applicant. A sketch in permanent ink showing proposed changes, to become part of the record, must be filed for approval by the examiner. The paper requesting amendments to the drawing should be separate from other papers.

39. Section 1.125 is revised to read as follows:

§1.125 Substitute specification.

If the number or nature of the amendments shall render it difficult to consider the case, or to arrange the papers for printing or copying, the examiner may require the entire specification, including the claims, or any part thereof, to be rewritten. A substitute specification may not be accepted unless it has been required by the examiner or unless it is clear to the examiner that acceptance of a substitute specification would facilitate processing of the application. Any substitute specification filed must be accompanied by a statement that the substitute specification includes no new matter. Such statement must be a verified statement if made by a person not registered to practice before the Office.

40. Section 1.131 is amended by revising paragraph (a) to read as follows:

§1.131 Affidavit or declaration of prior invention to overcome cited patent or publication.

(a) When any claim of an application or a patent under reexamination is rejected on reference to a domestic patent which substantially shows or describes but does not claim the rejected invention, or on reference to a foreign patent or to a printed publication, and the applicant or the owner of the patent under reexamination shall make oath or declaration as to facts showing a completion of the invention in this country before the filing date of the application on which the domestic patent issued, or before the date of the foreign patent, or before the date of the printed publication, then the patent or publication cited shall not bar the grant of a patent to the applicant or the confirmation of the patentability of the claims of the patent, unless the date of such patent or printed publication is more than one year prior to the date on which the applicant's or patent owner's application was filed in this country.

* * * * *

41. Section 1.132 is revised to read as follows:

§1.132 Affidavits or declarations traversing grounds of rejection.

When any claim of an application or a patent under reexamination is rejected on reference to a domestic patent which substantially shows or describes but does not claim the invention, or on reference to a foreign patent, or to a printed publication, or to facts within the personal knowledge of an employee of the Office, or when rejected upon a mode or capability of operation attributed to a reference, or because the alleged invention is held to be inoperative or lacking in utility, or frivolous or injurious to public health or morals, affidavits or declarations traversing these references or objections may be received.

42. Section 1.137 is amended by revising paragraph (b) to read as follows:

§1.137 Revival of abandoned application.

* * * * *

(b) An application unintentionally abandoned for failure to prosecute, except pursuant to §1.53(d), may be revived as a pending application if the delay was unintentional. A petition to revive an unintentionally abandoned application must be filed within one year of the date on which the application became abandoned or be filed within three months of the date of the first decision on a petition to revive under paragraph (a) of this section which was filed within one year of the date of abandonment of the application. A petition to revive an unintentionally abandoned application must be accompanied by (1) a statement that the abandonment was unintentional, (2) a proposed response unless it has been previously filed, and (3) a petition fee as set forth in §1.17(m). Such statement must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office. The Commissioner may require additional information where there is a question whether the abandonment was unintentional. The three month period set forth in this paragraph may be extended under the provisions of §1.136(a), but no further extensions under §1.136(b) will be granted. Petitions to the Commissioner under §1.183 to waive any time periods for requesting revival of an unintentionally abandoned application will not be considered, but will be returned to the applicant.

* * * * *

43. Section 1.153 is amended by revising paragraph (b) to read as follows:

§1.153 Title, description and claim, oath or declaration.

* * * * *

(b) The oath or declaration required of the applicant must comply with §1.63.

44. Section 1.154 is amended by revising paragraph (e) to read as follows:

§1.154 Arrangement of specification.

* * * * *

(e) Signed oath or declaration (See §1.153(b)).

45. Section 1.162 is revised to read as follows:

§1.162 Applicant, oath or declaration.

The applicant for a plant patent must be the person who has invented or discovered and asexually reproduced the new and distinct variety of plant for which a patent is sought (or as provided in §§1.42, 1.43, and 1.47). The oath or declaration required of the applicant, in addition to the averments required by §1.63, must state that he or she has asexually reproduced the plant. Where the plant is a newly found plant the oath or declaration must also state that it was found in a cultivated area.

46. Section 1.163 is amended by revising paragraph (b) to read as follows:

§1.163 Specification.

* * * * *

(b) Two copies of the specification (including the claim) must be submitted, but only one signed oath or declaration is required. The second copy of the specification may be a legible carbon copy of the original.

47. Section 1.172 is amended by revising paragraph (a) to read as follows:

§1.172 Applicants, assignees.

(a) A reissue oath must be signed and sworn to or declaration made by the inventor or inventors except as otherwise provided (see §§1.42, 1.43, 1.47), and must be accompanied by the written assent of all assignees, if any, owning an undivided interest in the patent, but a reissue oath may be made and sworn to or declaration made by the assignee of the entire interest if the application does not seek to enlarge the scope of the claims of the original patent.

* * * * *

48. Section 1.174 is amended by revising paragraph (a) to read as follows:

§1.174 Drawings.

(a) The drawings upon which the original patent was issued may be used in reissue applications if no changes whatsoever are to be made in the drawings. In such cases, when the reissue application is filed, the applicant must submit a temporary drawing which may consist of a copy of the printed drawings of the patent or a photoprint of the original drawings of the size required for original drawing.

* * * * *

49. Section 1.175 is amended by revising the introductory text of paragraph (a) to read as follows:

§1.175 Reissue oath or declaration.

(a) Applicants for reissue, in addition to complying with the requirements of §1.63, must also file with their applications a statement under oath or declaration as follows:

* * * * *

50. Section 1.324 is revised to read as follows:

§1.324 Correction of inventorship in patent.

Whenever a patent is issued and it appears that the correct inventor or inventors were not named through error without deceptive intention on the part of the actual inventor or inventors, the Commissioner may, on petition of all the parties and the assignees and satisfactory proof of the facts and payment of the fee set forth in §1.20(b), or on order of a court before which such matter is called in question, issue a certificate naming only the actual inventor or inventors.

51. Section 1.325 is revised to read as follows:

§1.325 Other mistakes not corrected.

Mistakes other than those provided for in §§1.322, 1.323, 1.324, and not affording legal grounds for reissue or for reexamination, will not be corrected after the date of the patent.

52. A new §1.335 is added to read as follows:

§1.335 Filing of notice of arbitration awards.

(a) Written notice of any award by an arbitrator pursuant to 35 U.S.C. 294 must be filed in the Patent and Trademark Office by the patentee, or the patentee's assignee or licensee. If the award involves more than one patent a separate notice must be filed for placement in the file of each patent. The notice must set forth the patent number, the names of the inventor and patent owner, and the names and addresses of the parties to the arbitration. The notice must also include a copy of the award.

(b) If an award by an arbitrator pursuant to 35 U.S.C. 294 is modified by a court, the party requesting the modification must file in the Patent and Trademark Office, a notice of the modification for placement in the file of each patent to which the modification applies. The notice must set forth the patent number, the names of the inventor and patent owner, and the names and addresses of the parties to the arbitration. The notice must also include a copy of the court's order modifying the award.

(c) Any award by an arbitrator pursuant to 35 U.S.C. 294 shall be unenforceable until any notices required by paragraph (a) or (b) of this section are filed in the Patent and Trademark Office. If any required notice is not filed by the party designated in paragraph (a) or (b) of this section, any party to the arbitration proceeding may file such a notice.

53. Section 5.12 is revised to read as follows:

§5.12 Petition for license.

(a) Filing of an application for patent for inventions made in the United States will be considered to include a petition for license under 35 U.S.C. 184 for the subject matter of the application. The filing receipt will indicate if a license is granted. If the initial automatic petition is not granted, a subsequent petition may be filed under paragraph (b) of this section.

(b) Petitions for license under 35 U.S.C. 184 should be presented in letter form and should include petitioner's address, and full instructions for delivery of the requested license when it is to be delivered to other than the petitioner.

Dec. 23, 1982.

GERALD J. MOSSINGHOFF,
Commissioner of
Patents and Trademarks.

[1027 OG 9]

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(51) Deposit Accounts—Statutory Fee Charges

Beginning on May 1, 1966, and until further notice, statutory fees, including filing fees for patent, design, and trademark applications, issue fees, appeal fees and opposition, cancellation and petition fees may be charged against the deposit accounts provided for by Rule 25(a) of the Rules of Practice in patent cases. During this period the prohibition of Rule 25(b) against such charges will be suspended.

In view of the facts that these fees are indispensable parts of the actions to which they relate and that the charging of a fee against an account which does not contain sufficient funds to cover it cannot be regarded as a payment of the fee, it is evident that the overdrawing of a deposit account may result in the loss of a vital date and may also impose a substantial burden on the Patent Office in making appropriate correction of its records. It is, therefore, necessary that effective steps be taken to avoid such overdrafts, as follows:

Checks of all accounts will be made periodically, and if any account is found to have been overdrawn, it will be immediately removed from the active accounts and no further drafts on it will be honored. Prompt payment of the outstanding balance will be required and the depositor or his attorney may be called on for an itemized statement identifying all statutory fees charged against the account during the period in question in order that it may be ascertained whether any previously granted date should be withdrawn.

It is emphasized that the success of the procedure outlined above depends upon the maintenance of a sufficient balance in deposit accounts at all times to meet any charges made against them. The Office must, therefore, strictly refuse to permit any depositor who has once overdrawn his account to maintain such an account in the future and in the event that any substantial number of overdrafts occurs it may be necessary to reestablish the prohibition of Rule 25(b) against charging statutory fees against deposit accounts.

Accordingly, effective May 1, 1966, the requirement of Rule 25(a) that an amount sufficient to cover all charges made against an account must always be on deposit will be strictly enforced, regardless of whether any fee is included in such charges and where this requirement is not complied with the account involved will be

removed from the active accounts.

EDWARD J. BRENNER,
Feb. 23, 1966. *Commissioner.*

[824 O.G. 1200]

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(52) Request for Refunds

In order to expedite the processing of refunds for payment of fees by actual mistake or in excess of the designated fees, attorneys and applicants requesting refunds should direct their correspondence to the attention of the "Refund Section, Accounting Division, Office of Finance." This procedure should be followed whether the request is for a refund check or for a credit to the deposit account. The problems of misrouting the request for a refund in the Patent and Trademark Office would be alleviated and the payment of refunds accelerated.

BRADFORD R. HUTHER,
Assistant Commissioner for Finance & Planning.

[1024 O.G. 59 (11-23-82)]

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(53) Deposit Account Authorizations

The rules of practice were amended effective Oct. 1, 1982, at 37 CFR 1.25(b) to state that: "A general authorization to charge all fees, or only certain fees, set forth in §§1.16 to 1.18 to a deposit account may be filed in an individual application, either for the entire pendency of the application or with respect to a particular paper filed." A general authorization would not apply to document supply fees under §1.19, such as those required for certified copies; to post-issuance fees under §1.20, such as those required for maintenance fees; or to miscellaneous fees and charges under §1.21, such as assignment recording fees.

Many applications filed prior to Oct. 1, 1982, contain broad language authorizing *any* additional fees which might have been due to be charged to a deposit account. The Patent and Trademark Office does not interpret such broad authorizations, filed prior to Oct. 1, 1982, to include authorization to charge to a deposit account the issue fee or other fees in sections 1.16, 1.17 and 1.18 except those associated with the paper containing the broad authorization. However, such a broad authorization filed in an application on or after Oct. 1, 1982, will be interpreted as authorization to charge the issue fee; as well as any other fee set forth in §§1.16, 1.17 or 1.18. Fees under sections 1.19, 1.20 and 1.21 will not be charged as a result of a general authorization under section 1.25.

It is recommended that authorizations to charge fees to deposit accounts include reference to the particular fees or fee sections of the rules which applicant intends to authorize. For example, if filing and processing fees under §§1.16 and 1.17 only are intended to be included in the authorization, and not the issue fee under §1.18, the authorization could read: "The Commissioner is hereby authorized to charge any fees under 37 CFR 1.16 and 1.17 which may be required during the entire pendency of the application to Deposit Account No. _____." Such an authorization would clearly exclude issue fees under 37 CFR 1.18 while including all the filing and processing fees listed in 37 CFR 1.16 and 1.17. Similarly, if it were intended to authorize the charging of fees relating only to a specific paper, the authorization could read "The Commissioner is hereby authorized to charge any fees under 37 CFR 1.16 and 1.17 which may be required by this paper to Deposit Account No. _____." Such authorizations would cover situations in which a check to cover a filing and processing fee under 37 CFR 1.16 and 1.17 was omitted or was for an amount less than the amount required.

It is extremely important that the authorization be clear and unambiguous. If applicants file authorizations which are ambiguous and which deviate from the usual forms of authorizations, the Office may not interpret the authorizations in the manner applicants intend. In such cases applicants could be subject to further expenses, petitions, etc. in order to correct fees which were not charged as intended due to an ambiguous authorization.

GERALD J. MOSSINGHOFF,
July 1, 1983. *Commissioner of Patents and Trademarks.*

[1032 OG 32]

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(54) Notice to All Deposit Account Holders

Beginning Oct. 7, 1983, please *mail deposit account remittances only* to:

Patent and Trademark Office
P.O. Box 70541
Chicago, Ill. 60673

To expedite credit to your deposit account and the treasury, and arrangement has been made between the Patent and Trademark Office, Treasury Department, and the First National Bank of Chicago utilizing a special "lockbox" depositary to receive deposit account remittances.

Checks should continue to be made payable to the Commissioner of Patents and Trademarks and be accompanied by *the top portion of your deposit account statement.* Submit only remittances for deposit accounts to this new address. All other correspondence should continue to be addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

LEONARD L. NAHME,
Director Office of Finance.

[1035 OG 27]

APPLICATION CONTENT

(55) Use of Metric System of Measurements in Patent Applications

In order to minimize the necessity in the future for converting dimensions given in the English system of measurements to the metric system of measurements when using printed patents as research and prior art search documents, all patent applicants are strongly encouraged to use either (1) only metric (S.I.) units, or (2) English units together with their metric system equivalents, when describing their inventions in the specifications of patent applications. This practice, however, is not being made mandatory at this time.

The initials S.I. stand for "Systeme International d'Unites," the French name for the International System of Units, a modernized metric system adopted in 1960 by the International General Conference of Weights and Measures based on precise unit measurements made possible by modern technology.

This request is made as part of the long-range program for conversion to metric units currently being conducted by the Federal Government.

Publications dealing with the metric system are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 and the American National Standards Institute, 1430 Broadway, New York, N.Y. 10018.

C. MARSHALL DANN,
July 1, 1974. *Commissioner of Patents.*

[924 O.G. 1104]

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(56) Filing of Non-English Language Applications

This notice is in response to inquiries regarding the filing of applications in a language other than English. The Office has received a few such applications in the past in emergency situations where the filing of a non-English language specification was the only possibility of saving a foreign priority date or preventing the running of a

statutory bar. In such situations the Office practice has been to accord the application a filing date if it includes all of the component parts required by 35 U.S.C. 111, and to require applicant to submit a verified translation of the previously filed application within two months.

In view of the inquiries received, it is considered appropriate that the Office clarify and publicize its practice in this area to avoid misunderstandings.

Accordingly, beginning February 1, 1976, the Office will accord a filing date to an application meeting the requirements of 35 U.S.C. 111 even though some or all of the application papers, including the written description and the claims, is in a language other than English and hence does not comply with 37 CFR 1.52, *provided:*

(1) the oath or declaration is signed and physically attached to the specification and claims to which it refers; and

(2) the application papers are accompanied by a statement, in English, from the applicant, his attorney or agent, certifying that it has been considered necessary to file the non-English language application in order to save a foreign priority date or prevent the running of a statutory bar.

A verified English translation of the non-English language papers should either accompany the application papers or be filed in the Office no later than two months after a notice requesting the translation has been mailed by the Office.

A subsequently filed verified English translation must contain the complete identifying data for the application in order to permit prompt association with the papers initially filed. Accordingly, it is strongly recommended that the original application papers be accompanied by a cover letter and a self-addressed return post card, each containing the following identifying data in English: (*a*) applicant's name(s); (*b*) title of invention; (*c*) number of pages of specifications, claims, and sheets of drawings; (*d*) whether oath or declaration was filed and (*e*) amount and manner of paying the filing fee.

The translation must be a literal translation verified as such by the translator, and must be accompanied by a signed request from the applicant, his attorney or agent, asking that the verified English translation be used as the copy for examination purposes in the Office. If the verified English translation does not conform to idiomatic English and United States practice it should be accompanied by a preliminary amendment making the necessary changes without the introduction of new matter prohibited by 35 U.S.C. 132. In the event the verified literal translation is not timely filed in the Office the application will be regarded as abandoned.

It should be recognized that this practice is intended for emergency situations to prevent loss of valuable rights and should not be routinely used for filing applications. There are at least two reasons why this should not be used on a routine basis. First, there are obvious dangers to applicant and the public if he fails to obtain a correct literal translation. Second, the filing of a large number of applications under the procedure will create significant administrative burdens on the Office.

The practice will be closely monitored to determine whether or not it should be continued.

C. MARSHALL DANN,
Dec. 31, 1975. *Commissioner of Patents and Trademarks.*

[942 O.G. 1552]

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(57) **Information in Oath/Declaration Necessary to Identify the Specification in Accordance with 37 CFR 1.63**

Section 1.63 of 37 CFR requires that an oath or declaration "identify the specification to which it is directed." Since filing dates are now granted on applications with the oath or declaration being filed later with a surcharge, the question has arisen as to what information must be supplied in the oath or declaration to identify the specification to which it is directed and to comply with the rule.

The declaration form suggested by the Office includes spaces for filling in the names of the inventors, title of invention, application serial number, filing date, foreign priority application information and United States priority application information. While this information should be provided, it is not essential that all of these spaces be filled in in order to adequately identify the specification in compliance with 37 CFR 1.63.

The following combinations of information supplied in an oath or declaration are acceptable as minimums for identifying a specification:

(1) name of inventor and application serial number;

(2) name of inventor, attorney docket number which was on the application as filed, and filing date of the application;

(3) name of inventor. title of invention and filing date;

(4) name of inventor, title of invention and reference to a specification which is attached to the oath or declaration at the time of execution and filed with the oath or declaration;

(5) name of inventor, title of invention and a statement by a registered attorney or agent that the application filed in the PTO is the application which the inventor executed by signing the oath or declaration.

If the oath or declaration is filed with an "attached" specification as indicated in item (4) above, it must be accompanied by a statement that the "attached" specification is a copy of the specification and any amendments thereto which were filed in the Office in order to obtain a filing date for the application. Such statement must be a verified statement if made by a person not registered to practice before the Office.

Oaths or declarations which do not meet the requirements set forth above will not be accepted as complying with 37 CFR 1.63 for completing an application. Any variance from the above guidelines will only be considered upon the filing of a petition for waiver of the rules under 37 CFR 1.183 accompanied by a petition fee (37 CFR 1.17(h)). Supplemental oaths or declarations in accordance with 37 CFR 1.67 will be required in applications in which the oaths or declarations are not completely filled in but contain sufficient information to identify the specifications to which they apply as detailed above.

GERALD J. MOSSINGHOFF,
Sept. 12, 1983. *Commissioner of Patents and Trademarks.*

[1035 OG 3]

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(58) **Extension of Transition Period to File Oaths or Declarations in Compliance with 37 CFR 1.63**

The Federal Register of Jan. 20, 1983 indicated at 48 FR 2706 that all oaths or declarations filed on and after Feb. 27, 1983, must comply with the requirements of 37 CFR 1.63 except for the transition period as noted below.

The Office indicated that it would continue to accept any oath or declaration in compliance with 37 CFR 1.65 as it existed immediately prior to Feb. 27, 1983 during a transition period ending June 30, 1983, provided that the oath or declaration was attached to and was executed as a part of an application.

Although the Office is not required to do so, it intends to make translated declaration forms available to the public in at least the more frequently required non-English languages. Since these non-English language translations are not yet available, the transition period is extended to end on Sept. 30, 1983 rather than on June 30, 1983. During this period, the Patent and Trademark Office will continue to accept any oath or declaration in compliance with 37 CFR 1.65 as it existed immediately

prior to Feb. 27, 1983, if the oath or declaration is attached to and was executed as a part of an application to be filed in the Patent and Trademark Office.

Effective Oct. 1, 1983, all oaths or declarations filed under 37 CFR 1.51(a)(2) as a part of a patent application must fully comply with 37 CFR 1.63.

DONALD J. QUIGG,
May 31, 1983. *Acting Commissioner of Patents and Trademarks.*

[1031 OG 53]

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(59) **Need for Copies of Drawings Submitted in Patent Applications**

The Patent and Trademark Office encourages applicants to submit two clear copies of the drawings, in addition to the original drawings submitted with newly filed patent applications. These copies are needed by the Patent Examining Corps during the prosecution of the case. Submission of the extra copies will allow us to reduce the processing time and costs for preparing applications for the examiners.

THERESA A. BRELSFORD,
July 8, 1983. *Assistant Commissioner for Administration.*

[1033 OG 13]

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(60) **Graphical Illustrations in the Specification**

For convenience many applicants have been including graphs or other types of graphical illustrations in the text portion of the specification. These illustrations do not come within the purview of 37 C.F.R. 1.58 which permits tables and chemical and mathematical formulas in the specification in lieu of formal drawings. Frequently, these graphical illustrations do not have satisfactory reproduction characteristics. Moreover, these reproductions are generally less than satisfactory due to the fact that the illustrations are usually reduced in size in order to fit a column of the printed patent page. Accordingly, effective immediately, graphs and graphical type illustrations in the specification will be objected to under 37 C.F.R. 1.58(a) and drawings pursuant to 37 C.F.R. 1.81 will be required.

WILLIAM FELDMAN,
Jan. 12, 1978. *Deputy Assistant Commissioner for Patents.*

[967 O.G. 2]

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(61) **Multiple Dependent Claims and New Drawing Filing Requirements**

Introduction

On January 24, 1978, Public Law 94-131 (pages 108–115 of "Patent Laws," August 1976 issue) and the Patent Cooperation Treaty came into force. This public law amends the patent statute, Title 35, United States Code, by providing for procedures and requirements set forth in the Patent Cooperation Treaty. Some of these statutory amendments also effect the laws governing the processing and examination of regular United States national applications filed on and after January 24, 1978.

The amendments of the patent law which will affect *U.S. patent applications filed on and after January 24, 1978,* relate to two elements of the patent application: the claims and the drawings. With regard to claims, the amendments to 35 U.S.C. 41 and 112 provide for multiple dependent claims in accordance with PCT Rule 6.4. With regard to drawings, the amendment to 35 U.S.C. 113 changes the requirements for filing drawings in order to obtain a filing date in accordance with PCT Article 7.

Purpose

This memorandum establishes in more detail the new procedures required by the amended statute. Any questions concerning these instructions may be directed to either Mary Turowski (extension 7-3776) in the administration area or Louis Maassel (extension 7-3070) in the examining area.

Revised 37 CFR sections 1.75(c), (f) and (g); and 1.81 and 1.83(c) were published in the *Official Gazette* of February 21, 1978.

Multiple Dependent Claims

Generally, a multiple dependent claim is a dependent claim which refers back in the alternative to more than one preceding independent or dependent claim.

The second paragraph of 35 U.S.C. section 112 has been revised in view of the multiple dependent claim practice introduced by the Patent Cooperation Treaty. Thus, section 112 authorizes multiple dependent claims, as long as they are in the alternative form (e.g., "A machine according to claims 3 *or* 4, further comprising . . ."). Cumulative claiming (e.g., "A machine according to claims 3 *and* 4, further comprising . . .") is *not* permitted. A multiple dependent claim may refer in the alternative to only one set of claims. A claim such as "A device as in claims 1, 2, 3 or 4, made by a process of claims 5, 6, 7 or 8" is improper. Section 112 allows reference to only a particular claim. Furthermore, a multiple dependent claim may *not* serve as a basis for any other multiple dependent claim, either directly or indirectly. These limitations help to avoid undue confusion in determining how many prior claims are actually referred to in a multiple dependent claim.

The amendment of the second paragraph of section 112 further clarifies that the limitations or elements of each claim incorporated by reference into a multiple dependent claim must be considered separately. Thus, a multiple dependent claim, as such, does not contain all the limitations of all the alternative claims to which it refers, but rather, contains in any one embodiment only those limitations of the particular claim referred to for the embodiment under consideration. Hence, a multiple dependent claim must be considered in the same manner as a plurality of single dependent claims.

Restriction Practice

For restriction purposes, each embodiment of a multiple dependent claim will be considered in the same manner as a single dependent claim. Therefore, restriction may be required between the embodiments of a multiple dependent claim. Also, some embodiments of a multiple dependent claim may be held withdrawn while other embodiments are considered on their merits.

Handling of Multiple Dependent Claims by the Application Division

The Application Division will be responsible for verifying whether multiple dependent claims filed with the application are in proper alternative form, that they depend only upon prior independent and single dependent claims and also for calculating the amount of the filing fee. A new form, PTO-1360, has been designed to be used in conjunction with the current fee calculation form PTO-875.

Handling of Multiple Dependent Claims by the Examining Group Clerical Staff

The examining group clerical staff is responsible for verifying compliance with the statute and rules of multiple dependent claims added by amendment and for calculating the amount of any additional fees required. This calculation should be performed on form PTO-1360.

If a multiple dependent claim (or claims) is added in an amendment without the proper fee, the amendment will not be entered until the fee has been received. In view of the requirements for multiple dependent claims, no amendment containing new claims or changing the dependency of claims will be entered before checking

whether the paid fees cover the costs of the amended claims. The applicant, or his attorney or agent, will usually be contacted to pay the additional fee in the same manner as currently in existence for such defects. Where a letter is written in insufficient fee situations, a copy of the multiple dependent claim fee calculation form PTO-1360 will be included for applicant's information.

Handling of Dependent Claims by the Examiner

Should any multiple dependent claim be in an application filed prior to January 24, 1978 or include a claim association or claim structure that violates any of the prohibitions, the claim will be objected to as not being in proper form as required by 37 CFR 1.75 in the next Office action. Such an improper claim will not be further treated on the merits.

When referring to a singular dependent claim or a single embodiment of a multiple dependent claim, as when making a rejection, such a claim or embodiment will be referred to by using the number of all of the claims involved in that claim or embodiment, starting with the highest. For example, if claim 2 was dependent on claim 1, the notations would be 2/1. If in the same application, claim 3 was independent and claim 4 was multiple dependent on claims 2 or 3, the notations would be 4/2/1 and 4/3. Furthermore, if claim 5 depended from claim 4, the notations would be 5/4/2/1 and 5/4/3. Each of these embodiments will be treated individually. It would be possible for claim 4/2/1 to be rejected under section 102 and claim 4/3 to be indicated as avoiding the prior art and being allowable if rewritten in independent form. A number of embodiments may be grouped together if there is a common ground of rejection, but it must be clear how each embodiment is treated.

A claim, such as claim 4, will not be allowed until all embodiments covered thereby are allowable. If an embodiment of a multiple dependent claim avoids the art while other embodiments are rejected over prior art, a statement will be made that that embodiment avoids the art and would be allowed if rewritten in separate dependent or independent form. Wording similar to the following may be used:

> "Embodiment _____ would be allowable if rewritten as a proper dependent or independent claim which contains only the limitations of this embodiment."

Calculation of Fees When Multiple Dependent Claims are Presented, Use of Form PTO-1360

To assist in the computation of the fees for multiple dependent claims, a separate "Multiple Dependent Claim Fee Calculation Sheet," form PTO-1360, has been designed for use with the current "Patent Application Fee Determination Record," form PTO-875. Form PTO-1360 will be placed in the file wrapper by the Application Division where multiple dependent claims are in the application as filed. If multiple dependent claims are not included upon filing, but are later added by amendment, the examining group clerical staff will place the form in the file wrapper. If there are multiple dependent claims in the application, the total number of independent and dependent claims for fee purposes will be calculated on form PTO-1360 and the total number of claims and number of independent claims will then be placed on form PTO-875 for final fee calculation purposes.

If at least $65 is included with the application on filing, but the total fee is insufficient, a "Notice of Insufficient Fee," form PTO-1094, is placed in the file wrapper by the Application Division as is currently done. The notice will be mailed by the examining group in accordance with established procedures.

Calculating Fees for Multiple Dependent Claims Proper Multiple Dependent Claims

Amended section 41(a) of title 35, U.S.C., provides that claims in multiple dependent form cannot be considered as single dependent claims for the purpose of calculating fees. Thus, a multiple dependent claim would be considered to be that number of dependent claims to which it refers. Any proper claim depending directly or indirectly from a multiple dependent claim would also be considered as the same number of dependent claims as referred to in the multiple dependent claim from which it depends.

Improper Multiple Dependent Claim

If any multiple dependent claim is improper, Application Division may indicate that fact by placing an encircled numeral "1" in the "Dep. Claims" column of form PTO-1360. The fee for any improper multiple dependent claim, whether it is defective for not being in the alternative form or for being directly or indirectly dependent on a prior multiple dependent claim, will only be one, since only an objection to the form of such a claim will normally be made.

This procedure also greatly simplifies the calculation of fees. Any claim depending from an improper multiple dependent claim will also be considered to be improper and be counted as one dependent claim.

FEE CALCULATION EXAMPLE

Claim Number	
1	Independent
2	Dependent on claim 1
3	Dependent on claim 2
4	Dependent on claim 2 or 3
5	Dependent on claim 4
6	Dependent on claim 5
7	Dependent on claim 1 or 4
8	Dependent on claim 1 or 5
9	Dependent on claim 8
10	Independent
11	Dependent on claim 1 or 10
12	Dependent on claim 1 and 10

FORM PTO-1360 (1/78) U.S. DEPT. COMM. PAT. AND TMK. OFF.

MULTIPLE DEPENDENT CLAIM FEE CALCULATION SHEET

(FOR USE WITH FORM PTO-875)

	AS FILED		AFTER 1ST AMDT		AFTER 2ND AMDT	
	IND.	DEP.	IND.	DEP.	IND.	DEP.
1	1					
2		1				
3		1				
4		2				
5		2				
6		2				
7		(1)				
8		(1)				
9		(1)				
10	1					
11		2				
12		(1)				
TOTAL IND.	2					
TOTAL DEP.	14	↵		↵		↵
TOTAL CLAIMS	16					

Comments on Fee Calculation Example

Claim 1.–This is an independent claim; therefore, a numeral "1" is placed opposite claim number 1 in the "Ind." column.

Claim 2.–Since this is a claim dependent on a single independent claim, a numeral "1" is placed opposite claim number 2 in the "Dep." column.

Claim 3.–Claim 3 is also a single dependent claim, so a numeral "1" is placed in the "Dep." column.

Claim 4.–Claim 4 is a proper multiple dependent claim. It refers directly to two claims in the alternative, namely, claims 2 or 3. Therefore, a numeral "2" to indicate direct reference to two claims is placed in the "Dep." column opposite claim number 4.

Claim 5.–This claim is a singularly dependent claim depending from a multiple dependent claim. For fee calculation purposes, such a claim is counted as being that number of claims to which direct reference is made in the multiple dependent claim which it depends. In this case, the multiple dependent claim number 4 it depends from counts as 2 claims; therefore, claim 5 also counts as 2 claims. Accordingly, a numeral "2" is placed opposite claim number 5 in the "Dep." column.

Claim 6.–Claim 6 depends indirectly from a multiple dependent claim 4. Since claim 4 counts as 2 claims, claim 6 also counts as 2 dependent claims. Consequently, a numeral "2" is placed in the "Dep." column after claim 6.

Claim 7.–This claim is a multiple dependent claim since it refers to claims 1 or 4. However, as can be seen by looking at the "2" in the "Dep." column opposite claim 4, claim 7 directly depends from a multiple dependent claim. This practice is improper under 35 U.S.C. 112 and Rule 1.75(c). Following the procedure for calculating fees for improper multiple dependent claims, a numeral "1" is placed in the "Dep." column with a circle drawn around it to alert the examiner that the claim is improper.

Claim 8.–This claim is a multiple dependent claim since it refers to claims 1 or 5. However, since claim 5 depends from multiple dependent claim 4, claim 8 indirectly depends from multiple dependent claim 4 through claim 5. This practice is improper. See MULTIPLE DEPENDENT CLAIMS, paragraph 2, above. Consequently, a numeral "1" is placed in the dependent claim column with a circle drawn around it.

Claim 9.–Claim 9 is improper since it depends from an improper claim. If the base claim is in error, this error cannot be corrected by adding additional claims depending therefrom. Therefore, a numeral "1" with a circle around it is placed in the "Dep." column.

Claim 10.–Here again we have an independent claim which is always indicated with a numeral "1" in the "Ind." column opposite the claim number.

Claim 11.–This claim refers to two independent claims in the alternative. A numeral "2" is therefore placed in the "Dep." column opposite claim 11.

Claim 12.–Claim 12 is a dependent claim which refers to two claims in the conjunctive ("1 *and* 10") rather than in the alternative ("1 *or* 10"). This form is improper under 35 U.S.C. 112 and Rule 1.75(c). Accordingly, since claim 12 is improper, an encircled numeral "1" is placed in the "Dep." column opposite claim 12.

Calculation of Filing Fee

After the numbers of "Ind." and "Dep." claims are noted on form PTO-1360, each column is added. In this example., there are 2 independent claims and 14 dependent claims or a total of 16 claims. The number of independent and total claims can then be placed on form PTO-875 and the fee calculated. In this example, the total number of claims 16 minus 10 leaves 6, which is multiplied by $2 for an additional total claim fee of $12. The total number of independent claims in the example is 2, which minus 1 is 1, which times the $10 rate is $10. The total filing fee is therefore $65 + $12 + $10, or total of $87.

Drawing Requirements

Revised 35 U.S.C. 113 relaxes the previous requirements for submission of drawings on filing under certain conditions. The first sentence of 35 U.S.C. 113 does require a drawing to be submitted upon filing where such drawing is necessary for the understanding of the invention. In this situation the lack of a drawing renders the application incomplete and as such, the application cannot be given a filing date until the drawing is received. The second sentence of 35 U.S.C. 113 deals with the situation wherein a drawing is not necessary for the understanding of the invention but the case admits of illustration and no drawing was submitted on filing. The lack of the drawing in this situation does not render the application incomplete but rather is treated much in the same manner as an informality. The examiner should require such drawings in almost all such instances. Such drawings could be required during the processing of the application but do not have to be furnished at the time the application is filed. The applicant is allowed at least two months from the date of the letter requiring drawings to submit them.

Handling of Drawing Requirements Under the First Sentence of 35 U.S.C. 113

Under the revised provisions the Application Division examiner will continue to make the initial decision in all new applications as to whether a drawing is "necessary" under the first sentence of 35 U.S.C. 113.

If during examination an examiner feels that a filing date should not have been granted in an application because it does not contain drawings, the matter will be brought to the attention of the Supervisory Primary Examiner (SPE) for review. If the SPE decides that drawings are required to understand the subject matter of the invention, the SPE will return the application to the Application Division with a memorandum requesting cancellation of the filing date and identifying the subject matter required to be illustrated.

Handling of Drawing Requirements Under the Second Sentence of 35 U.S.C. 113

35 U.S.C. 113 also deals with the situation wherein the drawing is not necessary for the understanding of the invention, but the subject matter admits of illustration by a drawing and the applicant has not furnished a drawing. The lack of the drawing in this situation does not render the application incomplete but rather is treated as an informality. A filing date will be accorded with the original presentation of the papers, despite the absence of drawings. In these situations, a drawing or further illustration will normally be required by the examiner. This may be done either prior to examination in a separate letter or in the first Office action and may be handled in much the same manner as informal photocopy drawings are presently handled. The examiner should require drawings where appropriate as early as possible, since the possession of the drawing at that time would facilitate the examination process. A letter requiring drawings may contain wording similar to the following:

> "The examiner has decided that the subject matter of this applicaton admits of illustration by a drawing and that a drawing would facilitate the understanding of the subject matter disclosed. (Continue with a specific mention of those items of which drawings are desired.) Applicant is required to furnish a drawing under 37 CFR 1.81. (Incorporate in Office action or set two-month period for response.)"

The applicant will be given at least two months from the date of such requirement to submit drawings. If the requirement for drawings is included in an Office action, the time for supplying the drawings will be the same as the time of response to the Office action. Upon receipt of the drawing within the period set, the examiner will check the drawings for new matter. If new matter is in-

cluded, the drawing will not be entered. It will be objected to as containing new matter. A new drawing without such new matter may be required if the examiner still feels a drawing is needed under 37 CFR 1.81 or 1.83. The examiner's decision would be reviewable by petition to the Commissioner under Rule 1.181. The decision on such a petition would be handled by the Group Director. If a drawing is not timely received in response to a letter from the examiner which requires a drawing, the application becomes abandoned for failure to respond.

RENE D. TEGTMEYER,
Feb. 8, 1978. *Assistant Commissioner for Patents.*

[968 O.G. 7]

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(62) Use of Symbol "Ø" in Patent Applications

The Greek letter Phi has long been used as a symbol in equations in all technical disciplines. It further has special uses which include the indication of an electrical phase or clocking signal as well as an angular measurement. The recognized symbols for the upper and lower case Greek Phi characters, however, do not appear on most typewriters. This apparently has led to the use of a symbol composed by first striking a zero key and then backspacing and striking the "cancel" or "slash" key to result in "Ø" which is an approximation of accepted symbols for the Greek character Phi. In other instances the symbol is composed using the upper or lower case letter "O" with the "cancel" or "slash" superimposed thereon by backspacing or is simply handwritten in a variety of styles. These expedients result in confusion because of the variety of type sizes and styles available on modern typewriters.

In recent years, the growth of data processing has seen the increasing use of this symbol ("Ø") as the standard representation of zero. The "slashed" or "cancelled zero" is used to indicate zero and avoid confusion with the upper case letter "O" in both text and drawings.

Thus, when the symbol "Ø" in one of its many variations, as discussed above, appears in patent applications being prepared for printing, confusion as to the intended meaning of the symbol arises. Those (such as examiners, attorneys, and applicants) working in the art can usually determine the intended meaning of this symbol because of their knowledge of the subject matter involved, but editors preparing these applications for printing have no such specialized knowledge and confusion arises as to which symbol to print. The result, at the very least, is delay until the intended meaning of the symbol can be ascertained.

Since the Office does not have the resources to conduct a technical editorial review of each application before printing, and in order to eliminate the problem of printing delays associated with the usage of these symbols, any questions about the intended symbol will be resolved by the editorial staff of the Office of Publications by printing the symbol "Ø" whenever that symbol is used by the applicant. Any Certificate of Correction necessitated by the above practice will be at the patentee's expense (37 CFR 1.323) because the intended symbol was not accurately presented by the Greek upper or lower case Phi letters (I, 0) in the patent application.

RICHARD J. SHAKMAN,
Dec. 20, 1978. *Assistant Commissioner for Administration.*

[978 O.G. 152]

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(63) U.S. Accession to Hague Convention Abolishing the Requirement of Legalization for Foreign Public Documents

On Oct. 15, 1981, the Hague "Convention Abolishing the Requirement of Legalization for Foreign Public Documents" entered into force between the United States and twenty-eight foreign countries that are parties to the Convention. The Convention applies to any document submitted to the United States Patent and Trademark Office for filing or recording, which is sworn to or acknowledged by a notary public in any one of the member countries. The Convention abolishes the certification of the authority of the notary public in a member country by a diplomatic or consular officer of the United States and substitutes certification by a special certificate, or apostille, executed by an officer of the member country. Accordingly, the Office will accept for filing or recording a document sworn to or acknowledged before a notary public in a member country if the document bears, or has appended to it, an apostille certifying the notary's authority. The requirement for a diplomatic or consular certificate, specified in 37 CFR 1.66 and note 1 of 37 CFR 3.45, will not apply to a document sworn to or acknowledged before a notary public in a member country if an apostille is used.

The member countries that are parties to the Convention are:

Austria	Italy	Spain
Bahamas	Japan	Suriname
Belgium	Lesotho	Swaziland
Botswana	Liechtenstein	Switzerland
Cyprus	Luxembourg	Tonga
Fiji	Malawi	U.K. of Great
France	Malta	Britain and
Germany,	Mauritius	N. Ireland
Fed. Rep. of	Netherlands	United States
Hungary	Portugal	Yugoslavia
Israel	Seychelles	

The Convention prescribes the following form for the apostille:

Model of certificate

The certificate will be in the form of a square with sides at least 9 centimetres long

APOSTILLE
(Convention de La Haye du Oct. 5, 1961)

1. Country: .....
This public document
2. has been signed by .....
3. acting in the capacity of .....
4. bears the seal/stamp of .....
.....

Certified

5. at ..... 6. the .....
7. by .....
8. No. .....
9. Seal/stamp: 10. Signature:
.....

GERALD J. MOSSINGHOFF,
Nov. 5, 1981. *Commissioner of Patents and Trademarks.*

[1013 O.G. 3]

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(64) Simulated or Predicted Tests or Examples

In order to provide for uniform practice before the Patent and Trademark Office, the following clarification of current Office practice relating to simulated or predicted tests or examples is being set forth. This notice specifies the Office policy which is currently in effect and is considered to have been in effect in the past in this area. The wording of the MPEP provisions prior to this amendment went further than was intended. The amended sections below spell out more clearly the Office's position from the start.

The following wording will be substituted in revision number 8 for that presently in paragraph D of section 608.01(p) of the Manual of Patent Examining Procedure.

MPEP §608.01(p)

"D. Simulated or Predicted Test Results or Prophetic Examples

Simulated or predicted test results and prophetical examples (paper examples) are permitted in patent applications. Working examples correspond to work actually performed and may describe tests which have actually been conducted and results that were achieved. Paper examples describe the manner and process of making an embodiment of the invention which has not actually been conducted. Paper examples should not be represented as work actually done. No results should be represented as actual results unless they have actually been achieved. Paper examples should not be described using the past tense."

The first and last paragraphs of MPEP section 707.07(1) are being deleted.

DONALD J. QUIGG,
Apr. 15, 1982. *Deputy Commissioner of Patents and Trademarks.*

[1018 O.G. 27]

EXAMINATION OF APPLICATIONS

(65) Examination of Claims For Patentability Under 35 U.S.C. 103

The purpose of this notice is to inform the public of the current Patent and Trademark Office policy concerning determinations of obviousness under 35 U.S.C. 103 in view of the recent Supreme Court decision in *Sakraida* v. *Ag Pro*, 189 USPQ 449 (1976).

The following text is a copy of a memorandum issued to all patent examining personnel relative to this topic. "A clarification of the policy of the Patent and Trademark Office in the examination of claims for patentability under 35 U.S.C. 103 seems in order at this time in view of the Supreme Court's decision in *Sakraida* v. *Ag Pro*, 189 USPQ 449 (decided April 20, 1976) which is similar to the Court's earlier decision in *Anderson's-Black Rock, Inc.* v. *Pavement Salvage Co.*, 163 USPQ 673 (decided December 8, 1969). "Office policy has consistently been to follow *Graham* v. *John Deere Co.*, 148 USPQ 4559 (decided February 21, 1966) in the consideration and determination of obviousness under 35 U.S.C. 103. The three factual inquiries enunciated therein as a background for determining obviousness are as follows:

1. Determination of the scope and content of the prior art;
2. Ascertaining the differences between the prior art and the claims in issue; and
3. Resolving the level of ordinary skill in the pertinent art.

"Attention is directed to MPEP Section 706 for a more complete discussion of the application of the Graham test. "The Supreme Court reaffirmed and relied upon the Graham three-pronged test in its consideration and determination of obviousness in the fact situations presented in both the Ag Pro and Black Rock decisions. In each case, the Court went on to discuss whether the claimed combinations produced a 'new or different function' and 'a synergistic result,' but clearly decided whether the claimed inventions were unobvious 'on the basis of the three-way test in Graham. Nowhere in its decisions in those cases does the Court state that the 'new or different function' and 'synergistic result' tests supersede a finding of unobviousness or obviousness under the Graham test. "Accordingly, examiners should continue to apply the test for patentability under 35 U.S.C. 103 set forth in Graham. It should be noted that the Supreme Court's application of the Graham test to the fact circumstances in Ag Pro is somewhat stringent, as it was in Black Rock."

C. MARSHALL DANN,
July 8, 1976. *Commissioner of Patents & Trademarks.*

[949 O.G. 3]

(66) Claims Copied From Patents

Applicants and their attorneys or agents are reminded of the requirement of Rule 205(b) (37 CFR 1.205(b)) of the Rules of Practice that "Where an applicant presents a claim copied or substantially copied from a patent, he must, at the time he presents the claim, identify the patent, give the number of the patented claim, and specifically apply the terms of the copied claim to his own disclosure, unless the claim is copied in response to a suggestion by the Office."

The requirement of Rule 205(b) (37 CFR 1.205(b)) applies to claims copied in an application at the time of filing as well as to claims copied in an amendment to a pending application. If an applicant, attorney, or agent presents a claim copied or substantially copied from a patent without complying with Rule 205(b) (37 CFR 1.205(b)) the examiner may be led into making an action different from what he would have made had he been in possession of all the facts. Therefore, failure to comply with Rule 205(b) (37 CFR 1.205(b)), when submitting a claim copied from a patent, may result in the issuance of an Order To Show Cause why the application should not be stricken from the files of the Patent Office. If a satisfactory answer is not filed within the period set in the Order it may be necessary to strike the application under Rule 56 (37 CFR 1.56).

This reminder is being published to emphasize to applicants and their attorneys or agents the importance of complying with the requirement of Rule 205(b) (37 CFR 1.205(b)) at the time the claim is copied.

WILLIAM FELDMAN,
Apr. 10, 1974. *Acting Assistant Commissioner for Patents.*

[922 O.G. 442]

(67) Translations of Foreign Language References

Frequently, Office actions cite references that are in a foreign language. In the event a translation of the entire text or portion of the text of the reference is readily available in the examiners' search files, a copy of the translation will normally be included with the Office action. However, applicants are cautioned that the inclusion of a translation with a foreign language reference should not be construed to mean that the examiner used or relied on the translation, or that it is accurate or an official translation made by the Patent and Trademark Office.

While this service may be infrequent, it could be increased by the submission of translations by the applicant to the Office. Accordingly, it is requested that translations of foreign language references be transmitted to the Office, and in particular be transmitted with the response to the Office action or in a separate envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231. In addition, it would be of great assistance to the Office in filing the translation, if the translation carried the following: 1. an identification of the foreign language reference and, where possible. 2. its location in the examiners' search files (e.g. location should be known if reference was cited in Office action). If indentifying information is not available, the incoming translation should carry the name "Scientific Library" thereon so that it can be processed by the Library.

WILLIAM FELDMAN,
Oct. 26, 1977. *Deputy Assistant Commissioner for Patents.*

[964 O.G. 24]

(68) Restriction Between Inventions

The practice set out in the notice of June 20, 1968 (852 O.G. 509) is hereby revised as follows.

Under the statute an application may properly be required to be restricted to one of two or more claimed inventions only if they are able to support separate patents and they are either independent or distinct.

If it is demonstrated that two or more claimed inventions have no disclosed relationship ("independent"), restriction should be required, and it is not necessary to further show that the claimed inventions are distinct. If it is demonstrated that two or more claimed inventions have a disclosed relationship ("dependent"), then a showing of distinctness is required to substantiate a restriction requirement.

Where inventions are neither independent nor distinct, one from the other, or they are not sufficiently different to support more than one patent, their joinder in a single application must be permitted.

Every requirement to restrict has two aspects, (1) the reasons (as distinguished from the mere statement of conclusion) why the inventions *as claimed* are either independent or distinct, and (2) the reasons for insisting upon restriction therebetween.

In order to support a requirement to restrict between combination and subcombination inventions, two-way distinctness must be demonstrated.

If it can be shown that a combination, as claimed (1) does not require the particulars of the subcombination as claimed for patentability, and (2) the subcombination can be shown to have utility either by itself or in other and different relations, the inventions are distinct. When these factors cannot be shown, such inventions are not distinct.

Two or more claimed subcombinations, disclosed as usable together in a single combination, and which can be shown to be separately usable, are usually distinct from each other.

In applications claiming inventions in different statutory categories only one-way distinctness is needed to support a restriction requirement. For example, in applications containing claims to both process and apparatus, distinctness may be shown if (1) the process as claimed can be practiced by hand or by another materially different apparatus, or (2) the apparatus as claimed can be used to practice another and materially different process.

As in the notice of May 1, 1974 concerning Markush-Type claims (922 O.G. 1016), if the search and examination of an entire application can be made without serious burden, the examiner is encouraged to examine it on the merits, even though it includes claims to distinct or independent inventions.

WILLIAM FELDMAN,
Apr. 9, 1975. *Deputy Assistant Commissioner for Patents.*

[934 O.G. 450]

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(69) Revised Practice Re Markush-Type Claims

This notice deals with Markush-type generic claims which include a plurality of alternatively usable substances or members. In most cases, a recitation by enumeration is used because there is no appropriate or true generic language. In many cases, the Markush-type claims include independent and distinct inventions. This is true where two or more of the members are so unrelated and diverse that a prior art reference anticipating the claim with respect to one of the members would not render the claim obvious under 35 U.S.C. 103 with respect to the other member(s).

In applications containing claims of that nature, the Examiner may require a provisional election of a single species prior to examination on the merits. The provisional election will be given effect in the event that the Markush-type claim will be examined fully with respect to the elected species and further to the extent necessary to determine patentability. Should the Markush-type claim be found not allowable, examination will be limited to the Markush-type claim and claims to the elected species, with claims drawn to species patentably distinct from the elected species held withdrawn from further consideration.

As an example, in the case of an application with a Markush-type claim drawn to the compound C-R, wherein R is a radical selected from the group consisting of A, B, C, D, and E, the Examiner may require a provisional election of a single species, CA, CB, CC, CD, or CE. The Markush-type claim would then be examined fully with respect to the elected species and any species considered to be clearly unpatentable over the elected species. If on examination the elected species is found to be anticipated or rendered obvious by prior art, the Markush-type claim and claims to the elected species shall be rejected, and claims to the non-elected species would be held withdrawn from further consideration. As in the prevailing practice, a second action on the rejected claims would be made final.

On the other hand, should no prior art be found that anticipates or renders obvious the elected species, the search of the Markush-type claim will be extended. If prior art is then found that anticipates or renders obvious the Markush-type claim with respect to a *non-elected species,* the Markush-type claim shall be rejected and claims to the non-elected species held withdrawn from further consideration. The prior art search, however, will not be extended unnecessarily to cover all non-elected species. Should applicant, in response to this rejection of the Markush-type claim, overcome the rejection, as by amending the Markush-type claim to exclude the species anticipated or rendered obvious by the prior art, the amended Markush-type claim will be re-examined. The prior art search will be extended to the extent necessary to determine patentability of the Markush-type claim. In the event prior art is found during the re-examination that anticipates or renders obvious the amended Markush-type claim, the claim will be rejected and the action made final. Amendments submitted after the final rejection further restricting the scope of the claim will not be entered.

If the members of the Markush group are sufficiently few in number or so closely related that a search and examination of the entire claim can be made without serious burden, the Examiner is encouraged to examine all claims on the merits, even though they are directed to independent and distinct inventions. In such a case, the Examiner will not follow the above procedure and will not require restriction.

This notice supersedes the practice set out in 922 O.G. 1016. dated May 1, 1974.

Although the above practice is now in effect, a rule change proposal is also being considered to provide for prosecution of multiple inventions in a single patent application by submission of additional fees.

DONALD W. BANNER,
Oct. 23, 1978. *Commissioner of Patents and Trademarks.*

[976 O.G. 128]

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(70) Revised Procedures for Recording Searches and Considerations of Certain Prior Art

In order to provide a more complete, accurate and uniform record of what has been searched and considered by the examiner for each application the Patent and Trademark Office has established revised procedures for recording search data in the application file. Such a record is of importance to anyone evaluating the strength and validity of a patent, particularly if the patent is involved in litigation. These new procedures will also facilitate the printing of certain search data on patents.

Under the revised procedures, searches are separated into two categories and listed, as appropriate, in either the "SEARCHED" box or a newly added "SEARCH NOTES" box on the file jacket.

Until file jackets can be reprinted to include a second search data box, all file jackets for new applications will have the "SEARCH NOTES" box stamped therein by the Mail Room. If additional space is required, entries will be continued on the outside right flap of the file jacket.

The revised procedures will apply to all new applications in which the first search is made after April 1, 1977 and do not affect the manner in which references are listed on the form PTO-892. "Notice of References Cited." Appropriate changes in the Manual of Patent Examining Procedure will be made.

A. "SEARCHED" Box Entries

Search entries made here, except those for search updates (see item A. 3 below), will be printed under "Field of Search" on the patent front page. Therefore, the following searches will be recorded in the "SEARCHED" box by the examiner along with the date and the examiner's initials, according to the following guidelines:

1. *A complete search of a subclass,* including all United States and foreign patent documents and other publications placed therein. The complete classification (class and subclass) will be recorded.
2. *A limited search of a subclass,* for example, a search that is restricted to an identifiable portion of the patent documents placed therein. If, however, only the publications in a subclass are searched, such an entry is to be made under "SEARCH NOTES" rather than under "SEARCHED." (See item B, 4 below.)

   The class and subclass, followed by the information defining the portion of the subclass searched in parenthesis, will be recorded.
3. *An update of a search previously made.*

   This search entry will be recorded in a manner to indicate clearly which of the previously recorded searches have been updated, followed by the expression "(updated)." Search update, entries, although recorded in the "SEARCHED" box, will not be printed.

   When a search made in a parent application is updated during the examination of a continuing application, those searches updated, followed by "(updated from parent S.N. _____)" will be recorded. If the parent has been patented, the patent number "Pat. N. _____" instead of serial number in the above phrase will be recorded.
4. *A mechanized search* of a file of documents in a specific art, conducted by using key terms to retrieve documents. The name of the mechanized search system as it appears in the following list will be recorded along with the expression "MS File" to indicate mechanized search file.

Mechanized Search Systems

Termatrex Systems:

Automatic Fuel Controls
Boots & Shoes
Chemical Testing
Combined Fasteners
Electrical Contact Materials
Surface Bonding Using Critical Metal

Edge-Notched Card System:

Fluid Devices

Punch Card Systems:

Electrolysis
Organometallics
Steroids

Computer Controlled Microfiche Search Systems (CCMSS):

A-D Convertors
Digital Data Processing Systems
Special Purpose Digital Processing Systems

When a search with a Termatrex or Edge-Notched card system is conducted, the examiner will complete form PTO-1041 in two copies, recording all queries searched, even those which yield only nonrelevant documents. All documents returned by the system in response to a query which are not actually reviewed will have an "X" drawn through their associated access and patent numbers. When conducting a search with a Punched Card system, the examiner will place in the application file the Code Sheet on which the terms searched have been marked along with the machine tape listing the documents retrieved. Any document not actually reviewed will have an "X" drawn through that document's number on the listing.

When conducting a search with the CCMSS search systems, the machine-produced search report, which lists the terms and tagged documents, will be placed in the application file on the right flap of the file jacket. Any tagged document not actually reviewed will have an "X" drawn through that document number on the search report.

B. "SEARCH NOTES" Box Entries

Entries made in the "SEARCH NOTES" box are of equal importance to those placed in the "SEARCHED" box; however, these entries will not be printed on any resulting patent. They are intended to complete the application file record of areas and/or documents considered by the examiner in the search. The examiner will record the following searches in the "SEARCH NOTES" box and in the manner indicated, with each search dated and initialled:

1. *A cursory search,* or scanning, of a subclass, i.e., a search usually made to determine if the documents classified there are relevant. The classification will be recorded, followed by "(Cursory)."
2. *A consultation* with other examiners to determine if relevant search fields exist in their areas of expertise. The class and subclass discussed, if not actually searched, will be recorded, followed by "(consulted)." This entry may also include the name of the examiner consulted and the art unit.
3. *A search of a publication* not located within the classified patent file, e.g., a library search, a text book search, a Chemical Abstracts search, etc. The following data will be recorded for each type of literature search:

   a. *Abstracting publications,* such as Chemical Abstracts or the Engineering Index—the name of the publication, the list of terms consulted in the index and the period covered will be recorded.

   b. *Periodicals*—The title and period or volumes covered, as appropriate will be recorded.

   c. *Books*—The title and author, edition or date, as appropriate, will be recorded.

   d. *Other types of literature* not specifically mentioned above (i.e., catalogs, manufacturer's literature, private collections, etc.).

   Unless the search is a cursory or browsing one, data as necessary to provide unique identification of material searched will be recorded. Specific materials cited by the examiner will not be recorded again here.

   e. *Computer search in Scientific Library*—An on-line computerized literature searching service which uses key terms and index terms to locate relevant publications in many large bibliographic data bases is available to examiners in the Scientific Library of the Patent and Trademark Office. A member of the library staff is assigned to assist examiners in selecting key terms and to program the search.

   There are two on-line search systems: The Lockheed Information Systems and the SDC Search Service.

   These search systems include many data bases.

   A copy of the search printout will be made and

placed in the application file, attached to the right flap of the file jacket.

The examiner will also indicate which publications were reviewed by initialling and dating the copy of the printout in the left margin adjacent to each reviewed publication. If only an abstract of a document was reviewed, the note of "ck'ed abst." will be made next to the initials and date. If the complete document was reviewed, the note "ck'ed doc." will be placed with the initials and date.

4. A search of only the *publications in a subclass.* The class and subclass followed by "(publications only)" will be recorded.
5. *A review of art cited in a parent application* or in an original patent, as required for all continuing and reissue applications, or a review of art cited in related applications or patents mentioned within the specification, such as those included to provide background of the invention. The serial number of a parent application that is still Pending or abandoned, followed by "refs. checked" or "refs. ck'ed" will be recorded. If for any reason not all of the references are checked because they are not available or clearly not relevant, such exceptions will be noted. The patent number of a parent or related application that was patented or of an original patent now being reissued will be recorded along with the expressions "refs. checked" or "refs. ck'ed."

C. Not Recorded

The following data will not be recorded in either of the search boxes, but will be noted in the application file as indicated below.

1. *Citations of prior art by applicants conforming to Rule 98 and the practice thereunder.*

   In each instance where all prior art referred to in a paper placed in the application file is considered, the examiner will place the notation "all ck'ed" and his or her initials adjacent to the citation.
2. *Citations of prior art by applicants not conforming to Rule 98 and the practice thereunder.*

   In each instance where an examiner considers, but does not cite on form PTO-892, specific prior art referred to in a paper placed in the application file, the examiner will place a notation adjacent to the reference. If all the references referred to in such a paper are reviewed, the examiner will place the notation "all ck'ed" and his or her initials adjacent the citation. If included in the specification, the examiner will write his or her initials adjacent to any reference(s) checked and enter "checked" or "ck'ed" in the left margin opposite the initials. If presented in a separate paper or in the remarks of an amendment, the examiner's initials and "checked" or "ck'ed" will be entered adjacent to the citation(s) or wherever possible to indicate clearly those checked.

RENE D. TEGTMEYER,
Feb. 22, 1977. *Assistant Commissioner for Patents.*

[956 O.G. 1546]

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(71) **Prior Art Cited by Applicants**

Effective immediately, applicants are encouraged to use new form PTO-1449, "List of Prior Art Cited by Applicant," when preparing a prior art statement under 37 CFR 1.97–1.99. A copy of the form is included herewith from which suitable reproductions can be made. This form, which will enable applicants to provide the PTO with a uniform listing of prior art citation, supersedes form PTO-3.72.

While the filing of prior art statements is voluntary, the procedure is governed by the guidelines of Section 609 of the Manual of Patent Examining Procedure and 37 CFR 1.97 through 1.99. To be considered a proper prior art statement, form PTO-1449 shall be accompanied by an explanation of relevance of each listed item, a copy of each listed patent or publication or other item of information and a translation of the pertinent portions of foreign documents (if an existing translation is readily available to the applicant), and should be submitted in a timely manner as set out in MPEP Sec. 609.

Examiners will consider all prior art citations submitted in conformance with 37 CFR 1.98 and MPEP Sec. 609 and place their initials adjacent the citations in the boxes provided on the form. Examiners will also initial citations not in conformance with the guidelines which may have been considered. A reference may be considered by the examiner for any reason whether or not the citation is in full conformance with the guidelines. A line will be drawn through a citation if it is not in conformance with the guidelines and has not been considered. A copy of the submitted form, as reviewed by the examiner, will be returned to the applicant with the next communication. The original of the form will be entered into the application file.

Each citation initialed by the examiner will be printed on the issued patent in the same manner as prior art cited by the examiner on form PTO-892.

The reference designations "AA," "AB," etc. (referring to applicant's reference A, Applicant's reference B, etc.) will be used by the examiner in the same manner as examiner's reference designations "A," "B," "C," etc. on Office Action Form PTO-1142.

WILLIAM FELDMAN,
Aug. 15, 1980. *Deputy Assistant Commissioner for Patents.*

[998 O.G. 8]

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(72) **Express Abandonments**

Experience over the past several months has indicated the need to clarify and re-emphasize existing practice regarding express abandonments submitted under 37 CFR 1.138

Since 1966, when Rule 138 was revised, it is no longer required that the applicant and the assignee of record, if any, sign an express abandonment. The revised rule indicates that a patent application may be expressly abandoned by an attorney or agent of record. Therefore, prior to signing a declaration of express abandonment of a patent application, it is imperative that the attorney or agent of record exercise every precaution in ascertaining that the abandonment of the application is in accordance with the desires and best interests of the applicant. Moreover, special care should be taken to insure that the appropriate application from a group of related applications is correctly identified in the letter of abandonment.

A declaration of abandonment signed by the applicant or his attorney or agent of record becomes effective when an appropriate official of the Office takes action in recognition of the declaration. When so recognized, the date of abandonment may be the date of recognition or a different date if so specified in the declaration itself. For example, where a continuing application is filed with a request to abandon the prior application as of the filing date accorded the continuing application, the date of the abandonment of the prior application will be in accordance with the request once it is recognized.

Action in recognition of an express abandonment may take the form of an acknowledgement by the examiner or the Patent Issue Division of the receipt of the express abandonment, indicating that it is in compliance with 37 CFR 1.138 (see Section 711.01 MPEP).Alternatively, recognition may be no more than the transfer of drawings to a new application pursuant to instructions which include a request to abandon the application containing the drawings to be transferred (see 37 CFR 1.60 and Section 608.02(i) MPEP).

It is suggested that divisional applications being submitted under 37 CFR 1.60 be reviewed before filing to ascertain whether the prior application should be abandoned. Recent experience reveals that some divisional applications are being filed under 37 CFR 1.60 with re-

quests to transfer the drawings from, and abandon, the prior application. Following the recognition of the abandonment, the attorney or agent signing the request informs the Office that the request was made by mistake for any one of a number of reasons. Care should be exercised in situations such as these as the Office looks on express abandonments as acts of deliberation, intentionally performed.

Another common situation involves the submission of an express abandonment following the allowance of an application The express abandonment may not be recognized unless it is actually received by appropriate officials in time to act before the date of issue. In those cases, once a patent number and issue date have been assigned to the application, it is considered too late to act on the express abandonment unless a petition under Rule 313(b) or Rule 183 is granted (see Section 711.01 of MPEP).

WILLIAM FELDMAN,
Apr. 7, 1975. *Deputy Assistant Commissioner for Patents.*

[934 O.G. 2]

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(73) **Notice of Abandonment for Failure to Prosecute Application**

Effective immediately the Patent Examining Corps will mail a communication, concerning all applications becoming abandoned in the Corps for failure to prosecute, to the correspondence address of record.

The communication to be mailed will merely comprise a copy of the first page of the Office action, to which applicant failed to properly respond, the copy including stamped language thereon indicating that the application has become abandoned and the date that the copy was mailed. The language stamped on the copy will be as follows: APPLICATION HAS BECOME ABANDONED. THIS NOTICE MAILED: _____ In no case will the mere failure to receive a notice of abandonment affect the status of an abandoned application.

This new procedure should enable applicants to take appropriate and diligent action to reinstate an application inadvertently abandoned for failure to timely respond to an official communication. In most cases, a petition to revive under 37 CFR 1.137 will be the appropriate remedy. It may be that a response to the Office action was mailed to the Office with a certificate of mailing declaration as a part thereof (notice of October 26, 1976: 951 O.G. 1342) but was not received in the Office. In this instance, adequate relief may be available by means of a petition to withdraw the holding of abandonment.

In any instance, if action is not taken promptly after receiving the notice of abandonment, appropriate relief may not be granted.

If a lack of diligent action is predicated on the contention that neither the Office action nor the notice of abandonment was received, one may presume that there is a problem with the correspondence address of record. Accordingly, your attention is directed to recent notices of May 28, 1975, and September 9, 1976, dealing with changes of address (935 O.G. 1352 and 951 O.G. 454). In essence, it is imperative that a paper notifying the Office of a change of address be filed promptly in *each* application in which the correspondence address is to be changed.

If an application is abandoned or a patent lapsed for an excessive time a terminal disclaimer may be required. A terminal disclaimer may also be required where the holding of abandonment or lapse is withdrawn but a determination is made that action attempting to correct the problem should have been taken in a more diligent manner.

WILLIAM FELDMAN,
May 9, 1977. *Deputy Assistant Commissioner for Patents.*

[959 O.G. 24]

(74) **Requirement for a Response Under 37 CFR 1.136 and 1.137 Where a Continuing Application is Being Filed.**

This notice is intended to clarify the requirements for a response as required by 37 CFR 1.136 or 1.137 in situations involving a petition for extension of time or a petition to revive an abandoned application for the purpose of filing a continuing application.

In those instances where an extension of time or a revival of an abandoned application is sought solely for the purpose of filing a continuing application under 35 U.S.C. 120 and where the prior application is to be abandoned in favor of the continuing application, the filing of a response as required by 37 CFR 1.111, 1.113, 1.192 or other regulation is considered to be an unnecessary expenditure of resources by the applicant. Accordingly, in these situations, the Patent and Trademark Office will accept the filing of a continuing application as a response under 37 CFR 1.136 or 1.137.

To facilitate processing by the Office, any such petition for extension of time or petition to revive should specifically refer to the filing of a continuing application and also include an express abandonment of the prior application conditioned upon the granting of the petition and the granting of a filing date to the continuing application.

GERALD J. MOSSINGHOFF,
May 13, 1983. *Commissioner of Patents and Trademarks.*

[1031 OG 11]

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(75) **Procedure for Handling Amendments under 37 CFR 1.116**

On Oct. 1, 1982, pursuant to Public Law 97–247, the Patent and Trademark Office discontinued the previous practice in patent applications of extending without fee the shortened statutory period for response to a final rejection upon the filing of a timely first response to a final rejection (37 CFR 1.116). Since Oct. 1, 1982, applicants are able to obtain additional time for a first or subsequent response to a final rejection by petitioning and paying the appropriate fee under 37 CFR 1.136(a), provided the additional time does not exceed the six month statutory period.

In order to continue to encourage the early filing of any first response after a final rejection and to take care of any situations in which the examiner does not timely respond to a first response after final rejection which is filed early in the period for response, the Office is changing the manner in which the period for response is set on any final rejection mailed after Feb. 27, 1983.

Under the changed procedure, if an applicant initially responds within two months from the date of mailing of any final rejection setting a three-month shortened statutory period for response and the Office does not mail an advisory action until after the end of the three-month shortened statutory period, the period for response for purposes of determining the amount of any extension fee will be the date on which the Office mails the advisory action advising applicant of the status of the application, but in no event can the period extend beyond six months from the date of the final rejection. This procedure will apply only to a first response to a final rejection and will be implemented by including the following language in each final rejection mailed after Feb. 27, 1983:

> A shortened statutory period for response to this final action is set to expire three months from the date of this action. In the event a first response is filed within two months of the mailing date of this final action and the advisory action is not mailed until after the end of the three-month shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory

action. In no event will the statutory period for response expire later than six months from the date of this final action.

For example, if applicant initially responds within two months from the date of mailing of a final rejection and the examiner mails an advisory action before the end of three months from the date of mailing of the final rejection, the shortened statutory period will expire at the end of three months from the date of mailing of the final rejection. In such a case, any extension fee would then be calculated from the end of the three-month period. If the examiner, however, does not mail an advisory action until after the end of three months, the shortened statutory period will expire on the date the examiner mails the advisory action and any extension fee may be calculated from that date.

Statutory periods set in Office actions mailed before Feb. 28, 1983, will not be effected by this change in procedure.

GERALD J. MOSSINGHOFF,
Jan. 14, 1983. *Commissioner of Patents and Trademarks.*

[1027 OG 71]

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(76) New Procedures for Recordation of Interviews

This notice establishes within the Patent and Trademark Office additional general procedures for the recordation of interviews. Proposed procedures were published in the Official Gazette of June 28, 1977 (959 O.G. 36) for comment from interested members of the public by August 10, 1977. Fifteen written comments were received the majority of which were favorable to the proposed procedures. Careful consideration has been given to the comments and the procedures are being adopted with a few changes.

Under present practice it is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability as set forth in section 713.04 of the Manual of Patent Examining Procedure (MPEP). This practice is continued and further amplified as set forth below.

Recent surveys have indicated that the substance of many interviews has not been made of record or the text thereof is incomplete as to substantive matters. In some cases, the substance of an interview may be presented as arguments in a subsequent response filed by the applicant but without any indication that they had been presented at the interview. In order to help insure a better record of examiner-applicant interviews in application files, the following new procedures are adopted to become effective for interviews conducted on and after January 1, 1978. Appropriate changes will be made in the Manual of Patent Examining Procedure (MPEP).

Examiners will complete a two-sheet carbon interleaf Interview Summary Form for each interview held where a matter of substance has been discussed by checking the appropriate boxes and filling in the blanks in neat handwritten form. Discussions regarding only procedural matters, directed solely to restriction requirements (for which interview recordation is otherwise provided for in Section 812.01 of the MPEP), or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below.

The Interview Summary Form shall be given an appropriate paper number, placed in the file and listed on the "Contents" list on the file wrapper. The docket and serial register cards will not be updated to reflect this interview. In a personal interview, the duplicate copy of the Form will be removed and given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephonic interview, the copy will be mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner before an allowance is not likely or if other circumstances dictate, the Form will be mailed promptly after the telephonic interview rather than with the next official communication. The original of the completed Form will be made of record and placed in the right hand flap of the file.

The Form provides for recordation of the following information:

—Serial Number of the application
—Name of applicant
—Name of examiner
—Date of interview
—Type of interview (personal or telephone)
—Name of participant(s) (applicant, attorney or agent, etc.)
—An indication whether or not an exhibit was shown or a demonstration conducted
—An identification of the claims discussed
—An identification of the specific prior art discussed
—An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). (Agreements as to allowability are tentative and do not restrict further action by the examiner to the contrary.)
—The signature of the examiner who conducted the interview
—Names of other Patent and Trademark Office personnel present.

The Form also contains a statement reminding the applicant of his responsibility to record the substance of the interview.

It is desirable that the examiner orally remind the applicant of his obligation to record the substance of the interview in each case unless both applicant and examiner agree that the examiner will record same. Where the examiner agrees to record the substance of the interview, or when it is adequately recorded on the Form or in an attachment to the Form, the examiner will check a box at the bottom of the Form informing the applicant that he need not supplement the Form by submitting a separate record of the substance of the interview.

It should be noted, however, that the Interview Summary Form will not be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview:

The complete and proper recordation of the substance of any interview should include at least the following applicable items:

1) A brief description of the nature of any exhibit shown or any demonstration conducted.
2) an identification of the claims discussed.
3) an identification of specific prior art discussed.
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the examiner.
5) a brief identification of the general thrust of the principal arguments presented to the examiner. The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he feels were or might be persuasive to the examiner.
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete or accurate, the examiner will take appropriate action as set forth in MPEP Section 713.04. If the record is complete and accurate, the examiner should place the indication "Interview record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

C. MARSHALL DANN,
Aug. 30, 1977. *Commissioner of Patents and Trademarks.*

[962 O.G. 21]

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(77) **Statements Filed Under Atomic Energy Act And NASA Act**

Attention is called to the provisions of section 152 of the Atomic Energy Act of 1954 (42 U.S.C. 2182) and section 305(c) of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2457). These statutes provide that the title to inventions useful in the production or utilization of special nuclear material or atomic energy, made or conceived in the course of or under any contract, subcontract, or arrangement entered into with or for the benefit of the Atomic Energy Commission, and any invention made in the performance of any work under any contract of the National Aeronautics and Space Administration, shall be vested in the United States. They also provide that no patent may be granted for any invention useful in the production or utilization of special nuclear material or atomic energy, or which in the opinion of the Commissioner has significant utility in the conduct of aeronautical or space activities, unless the applicant files with his application or within 30 days after request therefor by the Commissioner, a statement under oath setting forth (*a*) the full facts in regard to the making or conception of the invention, and (*b*) the situation with regard to the contractual relationships involving the Commission or the Administration. Careful attention should be given the exact wording of the requirements of whichever of these sections is pertinent in order to assure that all of the requirements are met. Since the duty of requiring the statements is placed by law on the Commissioner of Patents, it is incumbent on the Commissioner to determine whether the statements are timely filed and sufficient in substance to comply. Since these laws do not provide for any extension of the 30-day period or for reviving an applicaton which has become abandoned for failure to file a proper statement, it is important that such statements be timely filed and that they do so comply in order to avoid loss of valuable patent rights.

The "full facts" involved in the conception and making of an invention should include those which are unique to that invention. The use of form paragraphs or printed forms which set forth only broad generalized statements of fact is not ordinarily regarded as meeting the requirements of these statutes.

This office has construed the word "applicant" in both of these statutes to mean the inventor or joint inventors in person. Accordingly, in the ordinary situation, the statements must be signed by the inventor or joint inventors, if available. This construction is consistent with the fact that no other person could normally be more knowledgeable of the "full facts concerning the circumstances under which such invention was made," (42 U.S.C. 2457) or, "full facts surrounding the making or conception of the invention or discovery" (42 U.S.C. 2182).

In instances where an applicant does not have first-hand knowledge whether the invention involved work under any contract, subcontract, or arrangement with or for the benefit of the Atomic Energy Commission, or had any relationship to any work under any contract of the National Aeronautics and Space Administration, and includes in his statement information of this nature derived from others, his statement should identify the source of his information. Alternatively, the statement by the applicant could be accompanied by a supplemental declaration or oath, as to the contractual matters, by the assignee or other person, e.g., an employee thereof, who has the requisite knowledge.

Where an applicant is deceased or incompetent, or where it is shown to the satisfaction of this Office that he refuses to furnish a statement or cannot be reached after diligent efforts, declarations or statements under oath setting forth the information required by the statutes may be accepted from an officer or employee of the assignee who has sufficient knowledge of the facts. The offer of such substitute statements should be based on the actual unavailability of or refusal by the applicant, rather than mere inconvenience. Where it is shown that one of joint inventors is deceased or unavailable, a statement by all of the other joint inventor(s) may be accepted.

WILLIAM FELDMAN,
Aug. 13, 1973. *Deputy Assistant Commissioner for Patents.*

[914 O.G. 2]

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(78) **Extension of Time Limit**

This notice is intended to clarify certain misunderstandings and indicates the treatment given to requests for an extension of time in a situation where applicant has been given a time limit to complete an otherwise incomplete but bona fide attempt to respond to the previous Office action and advance the case to final action.

According to 37 CFR 1.135(c) when the applicant has filed a response to an examiner's action but consideration of some matter or compliance with some requirement has been inadvertently omitted, an opportunity to explain and supply the omission may be given before the question of abandonment is considered. According to the M.P.E.P., Section 710.02(c), the examiner may give applicant one month or the remainder of the period for response, whichever is longer, to complete the response. Neither the regulation nor the M.P.E.P. indicate that this time can be extended.

Under the regulation, the missing matter or lack of compliance must be considered by the examiner as being "inadvertently omitted." Once an inadvertent omission is brought to the attention of the applicant, the question of inadvertence no longer exists. Therefore, any further time to complete the response would not be appropriate under 37 CFR 1.135(c). Accordingly, no extension of time will henceforth be granted in these situations.

WILLIAM FELDMAN,
Nov. 28, 1977. *Deputy Assistant Commissioner for Patents.*

[965 O.G. 14]

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(79) **TITLE 37—PATENTS, TRADEMARKS AND COPYRIGHTS**

Chapter 1—Patent and Trademark Office, Department of Commerce

Part 1—Rules of Practice in Patent Cases

Patent Examining and Appeal Procedures

On October 4, 1976 notice was given in the Federal Register (41 FR 43729) of a proposal to amend sixteen sections of Title 37 of the Code of Federal Regulations relating to patent examining and appeal procedures. Interested persons were invited to comment on the proposal by December 7, 1976. One hundred seventy-five written letters and statements were submitted. A hearing was held in Arlington, Virginia on December 7, 1976 at which 21 persons testified orally. Careful consideration has been given to all comments received and the proposal is being adopted with certain changes.

The regulations adopted involve all sections that were proposed to be revised, amended or added—namely, §§1.11, 1.14, 1.52, 1.56, 1.65, 1.69, 1.97, 1.98, 1.99, 1.109, 1.175, 1.194, 1.196, 1.291, 1.292, and 1.346. Amendments also are being made in two sections which were not in-

cluded in the published proposal—§§1.51 and 1.176. Since amendments to these sections are closely related to the substance of matters notice and public comment on these amendments are deemed unnecessary.

In addition, amendments are being adopted which were published for comment in two earlier, much less extensive proposals that concerned availability of certain files for public inspection. A notice of a proposed amendment to §1.14(b) was published on June 4, 1974 (39 FR 19786). A notice of a proposed amendment to §1.11(a) was published on September 17, 1974 (39 FR 33376). No negative comments were submitted with respect to either of these proposals and both are being adopted without change.

The text of the rules will be reproduced in the Patent and Trademark Office **Official Gazette** in about a month with additions indicated by arrows and deletions indicated by brackets to help readers identify the changes. A transcript of the hearing, the letters and written statements received, and a summary and analysis of the comments are available for public inspection in Room 11E10 of Crystal Plaza Building 3, 2021 Jefferson Davis Highway, Arlington, Virginia.

Purpose of Rules

The purpose of the rules that are being adopted is to improve the quality and reliability of issued patents by strengthening patent examining and appeal procedures. It is desirable that patents be as dependable as possible, so as to enhance the incentives provided by the patent system to make inventions, to invest in research and development, to put new or improved products on the market, and to disclose inventions that otherwise would be kept as trade secrets. It is believed that the rules being adopted will help to maintain strong patent incentives.

The rules afford patent owners an opportunity, through the filing of a reissue application, to obtain a ruling from an examiner on the pertinence of additional prior art after a patent has been issued. The rules also broaden the public's opportunity for participation in the patent examining process, consistent with the limitations of statute, the protection of trade secrets, and the need to avoid making it unduly expensive to obtain a patent.

The rules set forth the duty of candor and good faith which applicants have to the Patent and Trademark Office and encourage them to provide information about the prior art in a way that will make it more useful to examiners. A provision for foreign language oaths by individuals who do not understand English is intended to make them more aware of their representations and of their obligations.

Under the rules more Patent and Trademark Office decisions that could have important precedent value will be available to the public, and some additional files will be available for inspection. Proceedings before the Board of Appeals are modified to help avoid the issuance of invalid patents. The rules encourage examiners to see that persons inspecting the file history of issued patents will be able to tell why the case was allowed.

Reissue Applications

Amended §1.175 permits a patent owner to have new prior art considered by the Office by way of a reissue application without making any changes in the claims or specification. It is adopted with no change from the proposal. The requirement for an oath or declaration alleging that the reissue applicant believes "the original patent to be wholly or partly inoperative or invalid. . . ." is dispensed within §1.175(a) (1) unless the applicant believes that to be the case. Section 1.175(a) (4) recognizes that reissues may be filed to have the patentability of the original patent considered in view of prior art or other information relevant to patentability which was not previously considered by the Office.

Thus, a patentee may file a reissue if he believes his patent is valid over prior art not previously considered by the Office but would like to have a reexamination. The procedure may be used at any time during the life of a patent. During litigation, a federal court may, if it chooses, stay proceedings to permit new art to be considered by the Office.

If a reissue application is filed as a result of new prior art with no changes in the claims or specification and the examiner finds the claims patentable over the new art, the application will be rejected as lacking statutory basis for a reissue, since 35 USC 251 does not authorize reissue of a patent unless it is deemed wholly or partly inoperative or invalid. However, the record of prosecution of the reissue will indicate that the prior art has been considered by the examiner.

A substantial majority of the comments received favored amended §1.175 as a means for improving the reliability of patents and avoiding unnecessary litigation costs. The negative comments generally questioned the statutory authority of the Commissioner to adopt this section. Authority for §1.175 is believed to exist in 35 U.S.C. 6, which is the Commissioner's rulemaking authority, and in 35 U.S.C. 251. The latter section of the statute requires that the patent be deemed wholly or partly inoperative or invalid before a reissue may be granted, but does not require such a belief by the patentee before a reissue application may be filed. The case law does not suggest that the approach of new §1.175(a)(4) is inconsistent with 35 U.S.C. 251.[1] Inasmuch as 35 U.S.C. 251 is a remedial provision,[2] it is believed that a liberal interpretation is justified and that adequate authority exists for the amended section.

Amended §1.11(b) opens all reissue applications to inspection by the general public. Section 1.11(b) also provides for announcement of the filings of reissue applications in the *Official Gazette*. This announcement will give interested members of the public an opportunity to submit to the examiner information pertinent to patentability of the reissue application. The announcement will include at least the filing date, reissue application and original patent numbers, title, class and subclass, name of the inventor, name of the owner of record, name of the attorney or agent of record, and examining group to which the reissue application is assigned. Section 1.11(b) is amended from the proposal to so indicate. Reissue applications already on file on the effective date of the section will not be automatically open to inspection and will not be announced in the *Official Gazette*. However, a liberal policy will be followed in granting petitions for access to individual applications already on file.

In order that members of the public may have time to review the reissue application and submit pertinent information to the Office before the examiner's action, §1.176 is amended to provide that reissue applications will not be acted on sooner than two months after the *Official Gazette* announcement of filing.

A substantial majority of the comments received favored adoption of §1.11(b). The only opposition was based upon a suggestion that no statutory authority exists. However, since reissue applications contain no new disclosure, and therefore no trade secrets or confidential information, they are considered to present a "special circumstance" within the meaning of 35 U.S.C. 122.

The insertion of "all" as the fifth word of the first sentence of §1.11(b) is for clarity. The word "furnished" is changed to "obtained" in §1.11 for clarity.

Protests and Public Use Proceedings

Amended §§1.291 and 1.292 give greater recognition to the value of written protests and public use petitions in avoiding the issuance of invalid patents.

A substantial majority of the comments favored these sections and viewed them as improving the quality of issued patents. Entry of protests has been upheld in court.[3]

[1] See *In re Clark;* 522 F.2d 623, 187 USPQ 209 (CCPA 1975), at footnote 4 where the court declind to decide whether it is proper to seek reissue merely to disclose uncited prior art. See also *In re Altenpohl,* 500 F.2d 1151, 183 USPQ 38 (CCPA 1974)

[2] See *In re Oda,* 443 F.2d 1200, 170 USPQ 268 (CCPA 1971).

[3] *International Paper Co.* v. *Fibreboard Corp.,* 63 F.R.D. 88, 181 USPQ 740 (D. Del. 1974).

Section 1.291(a) provides that public protests against pending applications will be entered in the application file and will, if they meet stated requirements, be considered by the examiner. To guarantee consideration by the examiner, protests must be accompanied by copies of prior art documents relied upon, although protests without copies will not necessarily be ignored. This is similar to the requirement of new §1.98 that copies of patents and publications accompany prior art statements. Section 1.291 does not contemplate permitting a protester to participate as a party in further proceedings. In the case of applications available to the public, such as reissue applications, the protester may file papers rebutting statements made by the applicant. The examiner at his discretion may request a protester to submit additional written information or may provide extra time for comments by a protester to be filed.

To ensure consideration by the examiner, all protests must be timely submitted. Protests will generally be considered timely submitted, if they are filed before final rejection or allowance of the application by the examiner. The consideration given to protests filed after final rejection or allowance of the application by the examiner will depend upon the relevance of the prior art documents submitted and the point in time at which they are submitted. Obviously, if the prior art documents anticipate or clearly render obvious one or more claims they will not knowingly be ignored. It must be recognized, however, that the likelihood of consideration by the examiner decreases as the patent date approaches. Accordingly, protests must be filed early in order to ensure their consideration.

The first sentence of §1.291(a) is deleted as unnecessary. Section 1.291(a) also is changed from the proposal to make clear that it applies to pending applications and that all protests will be referred to the examiner having charge of the subject matter involved.

Section 1.291(b) incorporates the existing Office policy of permitting persons to submit prior art citations or copies of prior art after a patent has been granted. The section is changed from the proposal by the addition of the words "any papers related thereto" to recognize that statements as to the pertinence of prior art may be submitted. Both the citations and the related papers are to be entered without comments. The material submitted is not examined by the Office but is available to members of the public inspecting Office records.

Some suggestions were received for major modifications of §1.291. It was suggested that an advisory opinion of the examiner be placed in the patent file when protests were received after issuance of the patent. Several persons supported a suggestion for examiners to state whether a "new issue" was raised by prior art cited by a protester. Another suggestion was that a procedure similar to that used in the recent Trial Voluntary Protest Programs[4] be adopted on a continuing basis. These suggestions were carefully considered, but are not adopted. The suggestions extend substantially beyond §1.291 as proposed, and their benefits do not appear sufficient to justify the added cost at this time.

Materials submitted to the Office under §§1.291 and 1.292 are to be served upon the applicant, patentee, attorney or agent when possible. The term "patentee" is used in its ordinary sense as defined in 35 USC 100(d). If service is not possible, materials are to be submitted in duplicate so that the Office can attempt to send the duplicate copy. The proposal is changed by adding the words "with the Office" after "filed" in §§1.291(c) and 1.292(b) for clarity.

In §1.292, the requirement that petitioner bear the Office's expenses in conducting the public use proceeding is deleted. Section 1.292 is also amended to ensure that the existence of public use proceedings is recorded in the application file wrapper. Notice of a petition for a public use proceeding will be entered in the file in lieu of the petition itself when the petition and the accompanying papers are too bulky to accompany the file. Any public use papers not physically entered in the file will be publicly available whenever the application file wrapper is available.

[4]923 O.G. 2; 930 O.G. 1454; 938 O.G. 945.

Duty of Disclosure

Amended §1.56 defines the duty to disclose information to the Office and the criteria for striking an application when that duty is violated. The wording of the section is changed in several respects from the proposal, but the purpose and general scope are the same as in the proposal. The section codifies the existing Office policy on fraud and inequitable conduct, which is believed consistent with the prevailing case law in the federal courts. The expanded wording of the section is intended to be helpful to individuals who are not expert in the judicially developed doctrines concerning fraud. The section should have a stabilizing effect on future decisions in the Office and may afford guidance to courts as well.

A majority of comments received favored §1.56 as proposed or with modifications. Persons opposed expressed concern over the imprecise definition of the duty of disclosure and the possibility that the proposal would substantially increase the burden on patent applicants. Some stated that there would be increased litigation as a result of the proposal. Several suggestions were received on better ways to define the individuals who should disclose information and the kinds of information that should be disclosed.

The first sentence of §1.56(a) is changed from the proposal by adding the word "substantively," so that individuals having a duty of disclosure are limited to those who are "substantively involved in the preparation or prosecution of the application." This change is intended to make clear that the duty does not extend to typists, clerks, and similar personnel who assist with an application. This phrase, when taken with the last sentence of §1.56(a), is believed to provide an adequate indication of the individuals who are covered by the duty of disclosure. The word "with" is inserted in the first sentence of §1.56(a) before "the assignee" and before "anyone to whom there is an obligation to assign" to make clearer that the duty applies only to individuals, not to organizations.

Numerous comments concerned the term "relevance" that was used in the proposal. In response to the comments, language is substituted in §1.56 and related sections which is believed to establish a clearer standard for determining whether information need be disclosed to the Office. "Relevant" is replaced by "material" because the latter term connotes something more than a trivial relationship. It appears to be more commonly used in court opinions. In addition, the third sentence of §1.56, which defines materiality, is rewritten. The sentence now states that information is material "where there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent." The sentence paraphrases the definition of materiality used by the Supreme Court in its recent decision in *TSC Industries* v. *Northway*.[5] Although in that case the court was concerned with rules promulgated by the Securities and Exchange Commission, the Court's articulation of materiality is believed consistent with the prevailing concept that has been applied by lower courts in recent patent cases.

The definition of materiality in §1.56 will have to be interpreted in the context of patent law rather than securities law. Principles followed by courts in securities cases should not be translated to patent cases automatically. It is noteworthy, however, that in formulating the definition of materiality in *TSC Industries* the Supreme Court considered some of the same matters over which concern was expressed in the public comments on proposed§1.56. The court noted that the standard of materi-

[5]426 U.S.—, 48 L. Ed. 2d 757, 96 S. Ct. 2126, 44 U.S.L.W. 4852, decided June 14, 1976.

ality should not be so low that persons would be "subjected to liability for insignificant omissions or misstatements," or so low that the fear of liability would cause management "simply to bury the shareholder in an avalanche of trivial information—a result that is hardly conducive to informed decision making."[6]

Although the third sentence of §1.56(a) refers to decisions of an examiner, it is intended that the duty of disclosure would apply in the same manner in the less common instances where the official making a decision on a patent application is someone other than an examiner—e.g., a member of the Board of Patent Interferences or the Board of Appeals. This is implicit in the duty "of candor and good faith" toward the Office that is specified in the first sentence of §1.56(a).

Comments and questions were received concerning the term "information" used in the second and third sentences of §1.56(a) and elsewhere. It means all of the kinds of information required to be disclosed under current case law. In addition to prior art patents and publications, it includes information on prior public uses, sales, and the like. It is not believed practicable to define information in the text of the rule at this time. However, the rule is not intended to require disclosure of information favorable to patentability—e.g., evidence of commercial success of the invention. Neither is it meant to require disclosure of information concerning the level of skill in the art for purposes of determining obviousness.

Several comments were received concerning the duty to disclose information the patent applicant regards as confidential, including information the applicant has received from another party under an injunction of secrecy. This problem has existed prior to amendment of §1.56. The Patent and Trademark Office, of course, keeps information disclosed by applicants confidential until a patent is issued. It has been suggested that the Office should develop a mechanism for continuing to hold information in confidence after issuance of a patent if in the judgment of the examiner the information is not material to the examination of the application. The feasibility of offering a rule for public comment on this topic at a later date will be considered.

New §1.56(b) is added to make clear that information may be disclosed to the Office through an attorney or agent of record or through a pro se inventor, and that other individuals may satisfy their duty of disclosure to the Office by disclosing information to such an attorney, agent or inventor. Information that is not material need not be passed along to the Office.

Proposed sections 1.56 (b) and (c) have been revised and shortened and appear at §§1.56 (c) and (d). The proposal was criticized for leaving it open to the Office to apply a different standard of materiality from the one set forth in §1.56.[7] Section 1.56(d) as adopted states that an application "shall" be stricken when the criteria set forth are met. Thus §1.56(d) as adopted establishes a single standard for striking applications.

The term "inequitable conduct" is dropped from §1.56(d) as covering too great a spectrum of conduct to be subject to mandatory striking. Inequitable conduct that is equivalent to fraud is intended to come within the definition of fraud. The Court of Customs and Patent Appeals already has interpreted "fraud" in existing §1.56 to encompass conduct of this sort.[8] Moreover, §1.56(d) as adopted calls for striking an application either for fraud or for a violation of the duty of disclosure.

In §1.56(d) "bad faith" is substituted for the term "deliberate" that was used in the proposal. This change is to make clear than an intent to deceive (or gross negligence equivalent to such an intent) must be shown before an application will be stricken. Bad faith is not present if information is withheld as a result of an error in judgment or inadvertence.

Several comments concerned whether attorneys and agents could represent their clients' interests and at the same time comply with §1.56. Similar comments were directed to §§1.97 to 1.99. It is of course in the interest of the client to have a valid patent and this cannot be obtained without disclosure of known material facts. It is not inconsistent for an attorney or agent to fulfill his duty of candor and good faith to the Office and to act as an advocate for his client. The submission of information under §1.56 does not preclude the submission of arguments that such information does not render the subject matter of the application unpatentable.

In §1.65 a new third sentence is added to require the patent applicant to acknowledge the duty of disclosure. The language is changed from the proposal to be consistent with changes made in §1.56. To allow time for the Office and applicants to revise printed oath and declaration forms now in use, the mandatory acknowledgement of the duty of disclosure in amended §1.65 does not become effective until January 1, 1978. Applicants at their option may include the new language in oaths and declarations filed prior to the effective date. The Office will publish a separate notice in the Federal Register adding a sentence acknowledging the duty of disclosure to appropriate forms in 37 CFR Part 3, "Forms for Patent Cases."

The word "statement" is deleted from the title of §1.65 to avoid confusion with the prior art statement of §1.97 through 1.99.

Amended §1.346 emphasizes that there must be a reasonable basis to support every allegation of improper conduct made by a registered practitioner in any Office proceeding. The language that was proposed is clarified in the section as adopted. Although §1.346 is limited to papers filed in Office proceedings, the amendment to §1.346 is not intended to imply that disciplinary action never will be taken against a registered practitioner under§1.348 for a groundless allegation of improper conduct in a court proceeding.

Prior Art Statement

New §§1.97, 1.98 and 1.99 deal with prior art statements and provide a mechanism by which patent applicants may comply with the duty of disclosure provided in §1.56. The sections have been substantially changed from the proposal, in response to comments received.

Unlike the corresponding part of the proposal, the sections as adopted are not mandatory, though applicants are strongly encouraged to follow the procedures described in them. Applications will be examined whether or not a prior art statement is filed and whether it complies with the rules or is defective. It is nevertheless believed that applicants will find that the use of prior art statements complying fully with the requirements of §§1.97 through 1.99 will be the best way to satisfy the duty of disclosure. The Patent and Trademark Office cannot assure that prior art disclosed in other ways will be considered by the examiner.

Sections 1.97 through 1.99 do not prescribe the content of what materials should be submitted in the prior art statement; this is for the applicant and the attorney or agent to decide in the light of the duty of disclosure expressed in §1.56. The only criterion contained in §§1.97 through 1.99 as to content of the art cited is in §1.97(b). This subsection indicates that the statement will be construed as a representation that the prior are listed includes what the submitter considers to be the closest art of which he is aware. The submitter need not decide which particular items of prior art are the closest or identify any items as such; the representation is simply that he is not withholding known prior art which he considers closer than that which is submitted. Section 1.97(b) makes clear that the prior art statement is not representation that a search has been made or that no better art exists.

[6] 426 U.S. at—, 48 L. Ed. 2d at 765, 96 S. ct. at 2132, 44 U.S.L.W. at 4853.

[7] See discussion accompanying proposed rules in Federal Register of Oct. 4, 1976, page 43731, first sentence.

[8] *Norton v. Curtiss*, 433 F. 2d 779, 792, 167 USPQ 532, 543 (CCPA 1970).

In §1.97(a) the time for filing the prior art statement is extended from the two months of the original proposal to three months. In most cases prior art submitted within three months will be available to the examiner before he takes up the case for action, though it will be helpful if citations are made as promptly as possible.

Section 1.98 lists the elements of the prior art statement: a listing of the art, a concise explanation of the relevance of each listed item, and copies of the art or the pertinent portions thereof.

The prior art statement resembles somewhat the "patentability statement" of the proposal and the "patentability brief" proposed elsewhere.[9] The name has been changed to reflect a change in the requirements of §1.98(a). Unlike the proposed version of this paragraph, which called for an explanation of why the claimed invention is believed patentable over the cited art, the paragraph as adopted calls only for a concise explanation of the relevance of each listed item. This may be nothing more than identification of the particular figure or paragraph of the patent or publication which has some relation to the claimed invention. It might be a simple statement pointing to similarities between the item of prior art and the claimed invention. It is permissible but not necessary to discuss differences between the prior art and the claims. It is thought that the explanation of relevance will be essentially as useful to the examiner as the formerly proposed explanation of patentability, and should be significantly less burdensome for the applicant to prepare.

Section 1.98 requires a copy of each patent or publication cited, including U.S. patents, to accompany the prior art statement. Several comments questioned the need for burdening the applicant to supply copies of materials that are present in the Office's files. However, substantial time and effort often is needed to locate a document in the Office's files. Since the person submitting the prior art statement generally has available a copy of the item being cited, it is believed that expense and effort can be minimized by having that person supply the copy in all cases. Consideration has been given to proposals to allow the applicant to submit an order for copies of the patents along with his statement instead of actually submitting copies. This will be further studied, but to date no way has been found to assure that the copies will be available to the examiner by the first action unless the applicant submits them with the prior art statement.

Other changes to §§1.97 through 1.99 from the proposal eliminate unnecessary language and clarify the requirements.

A notice published in 1974[10] contained guidelines for the citation of prior art by applicants. Many of those guidelines are repeated or superseded by §§1.97 through 1.99. In order to allow applicants, attorneys and agents time to adjust their procedures to comply with the requirements for prior art statements, the effective date of §§1.97 through 1.99 will be July 1, 1977. Until these new sections become effective, applicants should continue to follow the 1974 guidelines. Issuance of a revised notice, to take effect July 1, 1977, is under study.

A survey conducted by the Office in 1976 concludes that many applicants have not been citing prior art to the Office.[11] It is hoped that with the duty of disclosure expressly set forth in §1.56, applicants will perceive that it is to their advantage to use the procedures of §§1.97 through 1.99.

Section 1.51 is amended by designating the existing rule as §1.51(a) and adding new §1.51(b) which contains a reference to §§1.97 through 1.99.

[9] E.g., Federal Register of Sept. 9, 1968, 34 FR 14176, 866 O.G. 1402; S. 2255, 94th Congress, §131(b).

[10] Notice of Aug. 12, 1974, 926 O.G. 2.

[11] BNA's Patent, Trademark and Copyright Journal, No. 301, Oct. 28, 1976, page D-1.

Foreign Language Oaths

Amended §1.52 and new §1.69 are adopted as proposed.

Section 1.69 requires that oaths and declarations be in a language which is understood by the individual making the oath or declaration, i.e., a language which the individual comprehends. If the individual comprehends the English language, he must use it. If the individual cannot comprehend the English language, any oath or declaration must be in a language which the individual can comprehend. If an individual uses a language other than English for an oath or declaration, the oath or declaration must include a statement that the individual understands the content of any documents to which the oath or declaration relates. If the documents are in a language the individual cannot comprehend, the documents may be explained to him so that he is able to understand them.

The Office will provide approved translations for as many of the oath or declaration forms which appear in Part 3 of Title 37 of the Code of Federal Regulations as practicable, and in as many languages as practicable, probably using a side-by-side English/foreign language format. The availability of the foreign language forms will be announced in the *Official Gazette* at a later date.

The change in §1.52, providing for an exception to the requirement that oaths and declarations be in the English language, is necessitated by the adoption of §1.69.

Although very few persons opposed §§1.52 and 1.69, several suggested that the philosophy behind the change be extended to the specification, requiring the specification to be in a language which the applicant understands, accompanied by an English translation. This suggestion was not considered feasible because of the obvious burdens on the applicant and the danger to the applicant and the public if the translation is not literally correct. Also, if a large number of applications were filed in a foreign language, there would be significant administrative burdens on the Office. Attention is directed to the Manual of Patent Examining Procedure. §608.1, which permits non-English language applications to be filed in certain limited circumstances.

Other suggested modifications of the proposed rule included: (1) using an English language oath or declaration with one additional clause in a language understood by the person making the oath or declaration, the clause stating that the person understands all the documents to which the oath or declaration relates; and (2) extending the two month grace period for filling an English translation of an oath or declaration filed under §1.65.

After due consideration, suggestion (1) was believed not to accomplish the objectives of the rule as well as the adopted rule. Suggestion (2) would cause unsatisfactory delays in the initial processing of applications.

Decisions and Files Made Public

Section 1.14(d) makes more explicit the conditions under which significant decisions of the Patent and Trademark Office will be made available to the public, and includes reference to decisions of the Board of Patent Interferences, in addition to decisions of the Board of Appeals and the Commissioner.

A large majority of the comments received were favorable. Several commentators felt that more decisions would be made available as a result of the proposed section and that it would assist in publicizing aspects of Office procedure which may not have been available previously.

Some negative comments were based on the view that the Freedom of Information Act[12] required all decisions of the Office to be made publicly available. A greater number of those opposing the proposed section, however, felt that applicants should have an absolute right to have their applications maintained in confidence and

[12] 5 USC 552.

that no information should be made public without specific authorization from them. One commentator felt that rulemaking on this subject should be deferred until currently pending litigation[13] under the Freedom of Information Act was finally resolved.

The section as adopted is applicable to decisions deemed by the Commissioner to involve an interpretation of patent laws or regulations that would be of significant precedent value, where such decisions are contained in either pending or abandoned applications or in interference files not otherwise open to the public. It is applicable whether or not the decision is a final decision of the Patent and Trademark Office.

The parenthetical phrase in the first sentence of the proposed section, which cited other provisions of the rules under which decisions are open to public inspection, is deleted as unnecessary and possibly confusing. Also, in view of several comments received, the period of time during which an applicant or party in interest may object to having a decision made public is extended from one month to two months. At least twenty days is given to request reconsideration and seek court review before a decision is made public over an objection.

Section 1.14(d) is considered to place a duty on the Patent and Trademark Office to identify significant decisions and to take the steps necessary to inform the public of such decisions, by publication of such decisions, in whole or in part. It is anticipated, however, that no more than a few dozen decisions per year will be deemed of sufficient importance to warrant publication under the authority of this section.

Amended §1.14(b) allows public inspection of abandoned applications referred to in defensive publications. The comments received on the proposed amendment on this topic in 1974 expressed no opposition and the proposal is adopted without change.

The amendment is intended to encourage use of the defensive publication program provided under §1.139. The objective of that program is to make available to the public the technical disclosure of applications in which the owner prefers to publish an abstract in lieu of obtaining an examination. Existing §§1.11(b) and 1.139 open the complete defensive publication application to inspection by the general public upon publication of the abstract. With the amendment, an abandoned application referred to in a defensive publication application will likewise be open to public inspection, avoiding any need to repeat its contents in the defensive publication application. Thus, public availability of the applications involved should be of benefit both to the applicant and the public.

A suggestion was made that the section be extended still further to include abandoned applications referred to in foreign patents. This suggestion, however, goes too far beyond the proposal that was published and has too uncertain an impact to be adopted at this time.

Amended §1.11(a) provides earlier access to the file of an interference which involved a patent or an application on which a patent has issued. All comments that were submitted on the 1974 proposal on this topic were favorable and two commentators felt the proposal should be extended further. The proposal is being adopted without change.

Under present practice, access to the file of an interference is not permitted until judicial review of the decision of the Board of Patent Interferences has been exhausted. The amended section allows access to the file after final decision of the Board of Patent Interferences if that decision is an award of priority as to all parties. It is believed that such earlier access will be of benefit to members of the public by making available information relevant to the issuance of the patent whether or not the interference decision is still being adjudicated.

Patent Appeals

Section 1.194 clarifies the circumstances in which oral hearings should be requested, provides for oral arguments by or on behalf of examiners in certain appeals and reduces the time permitted for oral arguments.

Comments relating to this section were favorable by a very substantial majority, although there were several reservations to the effect that §1.194(a) tended to discourage or downgrade oral arguments. Participation by examiners was considered to be desirable not only from the standpoint of improving the overall presentation of the argument, particularly in complex cases, but also for the educational and experience benefits to the examiners themselves.

The only opposition to the section was based on the feeling that oral hearings would be discouraged. The rule is intended to discourage oral hearings only to the same extent as the Office's 1975 Official Gazette notice on the subject.[14] Section 1.194(a) indicates that oral hearings should not be requested as a matter of course in every appeal, but only in those circumstances where the appellant feels that such a hearing will be of material assistance to the proper presentation of the appeal. The section expressly provides that equal consideration will be accorded in deciding all appeals, whether or not an oral hearing is held.

In appeals where the appellant has requested an oral hearing §1.194(b) provides for oral argument by, or on behalf of, the primary examiner, if such argument is considered to be helpful by either the primary examiner or the Board. This provision incorporates the present practice of permitting examiners to present an oral argument before the Board.[15] It gives the Board additional discretionary authority to request presentation of an oral argument by, or on behalf of the examiner to ensure that all issues are fully and accurately presented.

Section 1.194(c) provides, as does existing §1.194, that appeals will be assigned for consideration and decision without an oral hearing where none has been requested by the appellant. Where an oral hearing has been requested, a day of hearing will be set, and both appellant and the primary examiner will be notified. A provision for notice to the examiner is added to the proposed version. Additionally, §1.194(c) reflects the present practice of limiting oral argument on behalf of the appellant to twenty minutes.[16] The time permitted for argument by the examiner has been shortened from twenty minutes, as proposed, to fifteen minutes. The examiner, unlike the appellant, will not ordinarily need time to present the facts of the case or for rebuttal.

In any appeal where oral argument is to be presented by, or on behalf of, the primary examiner, the appellant will be given due notice of that fact.

Proposed §1.196(b) would have authorized the Board of Appeals to reject allowed claims, in cases before it, whenever the Board had knowledge of grounds for so doing.

While a majority of those commenting on this section favored in principle the concept of allowing the Board to have this right, significant concern was voiced that there was no statutory authority for the Board to actually reject allowed claims. Further, the question of proper authority for judicial review of such action by the Board was a matter of concern. Other reasons advanced in opposition to the section were that applicants would be inhibited from appealing by the risk of having allowed claims rejected and that the proposal would create a higher presumption of validity in cases reviewed by the Board. A significant number commented that it would be more appropriate for the Board to remand the case to the primary examiner for consideration of the grounds raised by the Board. This would afford the applicant an opportunity to demonstrate the patentability of the claims and would remove any question as to statutory authority.

In view of the comments received, existing §1.196(b) will not be modified, but a new §1.196(d) is added pro-

[13] *Irons* v. *Gottschalk*; Slip Opinion, No. 74-1365 (D.C. Cir., Oct. 21, 1976).

[14] See notice of Mar. 20, 1975, 933 O.G. 1010.

[15] MPEP, §1209.

[16] See notice of Mar. 20, 1975, 933 O.G. 1010.

viding express authority for the Board of Appeals to include, in its decision, a statement of any grounds for rejecting any allowed claim that it believes should be considered by the primary examiner. Section 1.196(d) provides that the Board may remand the case to the examiner for such consideration, and that the applicant shall have an opportunity to respond to the grounds set forth by the Board prior to consideration, by the examiner. If the previously allowed claims are rejected by the examiner, the rejection may be appealed to the Board.

The new section further provides that a decision of the Board which includes a remand will not be considered as a final decision in the case, but that the Board, following conclusion of the proceedings before the primary examiner, will either adopt its earlier decision as final or will render a new decision based on all appealed claims, as it considers appropriate. In either case, final action by the Board will give rise to the existing alternatives available to an appellant following a decision by the Board.

In situations where the primary examiner concludes after consideration of all the evidence and argument that the remanded claims should be allowed, the new rule dealing with reasons for allowance (§1.109) provides an appropriate mechanism for him to explain, on the record, his reasoning for coming to this conclusion, notwithstanding the grounds set forth by the Board in its statement.

Promulgation of new §1.196(d) does not affect the Board's existing authority to remand a case to the primary examiner without rendering a decision in appropriate circumstances. Section 1.196(d) is not intended as an instruction to the Board to reexamine every allowed claim in every appealed application. It is, rather, intended to give the Board express authority to act when it becomes apparent, during the consideration of rejected claims, that one or more allowed claims may be subject to rejection on either the same or on different grounds from those applied against the rejected claims.

Reasons for Allowance

New §1.109 is intended to emphasize and formalize the examiner's authority to state his reasoning for allowing a claim or claims. The authority is discretionary with the examiner and is only to be used when the record does not otherwise reveal the reasons for allowance.

A majority of the comments received favored the rule as proposed because it would tend to provide courts and others who were reviewing the patent with a clearer record. Those who opposed the rule most often gave the reason that the examiner might fail to state all the reasons or the strongest reasons why a claim was allowed, which could place unnecessary limitations on the claims or create an estoppel in subsequent litigation or licensing.

To help insure that the examiner's statement of his reasoning in allowing a claim will not unnecessarily limit the claims or create an estoppel, a final sentence is added to the proposal which states that failure of the applicant to comment upon or rebut the examiner's reasoning "shall not give rise to any implication that the applicant agrees with or acquiesces in the reasoning of the examiner."

Several commenters suggested that stricter enforcement of §§1.111 and 1.133 would eliminate the need for a new rule concerning reasons for allowance. Situations exist, however, where a statement of reasons for allowance could be helpful, for example when an examiner withdraws a rejection for reasons not suggested by the applicant; when an applicant submits several arguments for allowing a claim and the examiner finds not all of them persuasive: when an examiner allows a claim on the first Office action after citing very close prior art: and when the examiner allows a claim after remand from the Board of Appeals (see new §1.196(d)).

The first sentence of the proposed rule is changed to define more precisely the circumstances in which an examiner's statement is appropriate, as well as to define more precisely the content of the statement. The statement will include the examiner's "reasoning." The examiner may state his reasoning whenever he "believes that the record of the prosecution as a whole does not make clear his reasons for allowing a claim or claims."

Several persons commented that the rule should provide a procedure for appeal from the examiner's statement of his reasoning. The rule does permit applicants to comment upon the examiner's reasoning. If the applicant does not wish to comment, he may reserve for a later proceeding, without prejudice, any rebuttal. [Text of adopted rules appears in 37 CFR, revised 7-1-77]

Effective Date. These amendments become effective on March 1, 1977, except for §§1.51, 1.97, 1.98, and 1.99 which become effective on July 1, 1977, and §§1.65 and 1.69 which become effective on January 1, 1978.

C. MARSHALL DANN,
Jan. 18, 1977. *Commissioner of Patents and Trademarks.*

Betsy Ancker-Johnson, Ph.D.
Jan. 19, 1977. *Assistant Secretary for Science and Technology.*

[955 O.G. 1054]

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(80) **Guidelines for Implementation of Recently Revised Rules**

Recently a number of rules relating to Patent Examining and Appeal procedures were revised. The new rules were published in the Federal Register at 42 F.R. 5588 on January 28, 1977, and in the *Official Gazette* at 955 O.G. 1054 on February 22, 1977. The following guidelines are being published to describe the procedures which are being followed in implementing 37 CFR sections 1.11, 1.97–1.99, 1.109, 1.194, 1.291 and 1.292.

Files Open to the Public

Section 1.11(b) is applicable only to those reissue applications filed on or after March 1, 1977. Those reissue applications already on file will not be automatically open to inspection but a liberal policy will be followed by the Office of the Solicitor in granting petitions for access to such applications.

(**Note.**—These sections as changed will be incorporated into the Manual text in Rev. 3 of the Manual.)

For those reissue applications filed on or after March 1, 1977, the following procedure will be observed:

1) The filing of reissue applications will be announced in the *Official Gazette* and will include certain identifying data as specified in section 1.11(b). Any member of the general public may request access to a particular reissue application filed after March 1, 1977. Since no record of such request is intended to be kept, an oral request will suffice.
2) The reissue application files will be maintained in the examining groups and inspection thereof will be supervised by group personnel. Although no general limit is placed on the amount of time spent reviewing the files, the Office may impose limitation, if necessary, e.g., where the application is actively being processed.
3) Where the reissue application has left the examining group for administrative processing, requests for access should be directed to the appropriate supervisory personnel in the Division or Branch where the application is currently located.
4) Requests for copies of papers in the reissue application file must be in writing addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231 and may be either mailed or delivered to the Office mailroom. The price for copies made by the Office is thirty cents per page.

Prior Art Statements

This notice supersedes the notices of August 12, 1974 (926 O.G. 2) and May 19, 1975 (935 O.G. 902) relating

to citations of prior art. Although new sections 1.97 through 1.99 are not effective until July 1, 1977, and are not mandatory upon applicants, they provide an ideal mechanism for complying with the duty of disclosure under 37 CFR 1.56. The statements should be submitted in accordance with the following guidelines:

1) Prior art statements should be submitted at the time of filing the application or within three months thereafter and may be separate from the specification or incorporated therein. The statement shall serve as a representation that the person preparing it has included therein what he believes to be the closest prior art of which he is aware and shall not be construed as a representation that no better art exists or that a search has been made. If the first action in the application is received prior to three months after filling of the application and no prior art statement has been submitted, the prior art statement may be submitted with the response to the first action and be considered timely.
2) The statement shall include a listing of the patents, publications or other information which the preparer of the statement wishes to cite and a concise explanation of the relevance of each listed item. Copies of the pertinent portions of all listed documents shall be supplied along with the statement, both when incorporated into the specification and when filed separately. If two or more patents or publications considered material are substantially identical, a copy of a representative one shall be included with the statement and others may merely be listed with an indication of which are considered to be substantially identical.
3) A translation of the pertinent portions of foreign language patents or publications considered material should be transmitted if an existing translation is readily available to the applicant. It will be sufficient, however, to transmit an equivalent English language patent or publication so long as it is identified as an equivalent.

   Where the applicant has submitted copies of prior art in accordance with these guidelines in a prior application, reference to the prior application and the submission therein will be sufficient for the continuing application as far as the copies are concerned. As far as the statement per se is concerned, the relevance of the prior art to the claimed subject matter must be indicated if it differs from its relevance as explained in the prior application.
4) If prior to the issuance of a patent an applicant pursuant to his duty of disclosure under 37 CFR 1.56, wishes to bring to the attention of the Office additional patents, publications or other information not previously submitted, the additional information should be submitted to the Office with reasonable promptness. It may be included in a supplemental prior art statement or may be incorporated into other communications to be considered by the examiner. Any transmittal of additional information shall be accompanied by explanations of relevance and by copies in accordance with the requirements aforementioned. The transmittal should include a statement explaining why the prior art was not earlier submitted.

While the Patent and Trademark Office will not knowingly ignore any prior art which might anticipate or suggest the claimed invention, no assurance can be given that cited art or other information not submitted in accordance with these guidelines will be considered by the examiner.

After the claims have been indicated as allowable by the examiner, e.g., by the mailing of an Ex parte Quayle action, a notice of allowability (PTOL—327), an examiner's amendment (PTOL—37), or a Notice of Allowance (PTOL—85), any citations submitted will be placed in the file. Since prosecution has ended, however, such submissions will not ordinarily be considered by the examiner unless the citation is accompanied by:

(*a*) A proposed amendment cancelling or further restricting at least one independent claim and narrowing the scope of protection sought;
(*b*) A timely affidavit under 37 CFR 1.131 with respect to the material cited; or
(*c*) A statement by the applicant or his attorney or agent that, in the judgment of the person making the statement, the prior art or other information cited raises a serious question as to the patentability of the claimed subject matter, or is closer prior art than that of record.

If the material is submitted after the base issue fee has been paid, it must also be accompanied by a petition under 37 CFR 1.183 requesting a waiver of 37 CFR 1.312. Such petition, if granted, would result in review of the art by the examiner and possible entry of the amendment.

In each instance where an examiner considers, but does not cite on form PTO—892, specific prior art referred to in a paper placed in the application file, the examiner will place a notation adjacent to the reference according to the following:

> If included in the specification, the examiner will write his or her initials adjacent to any references checked and enter "checked" in the left margin opposite the initials. If presented in a separate paper or in the remarks of an amendment, the examiner's initials and "checked" will be entered adjacent to the citations or wherever possible to indicate clearly those checked.

Reasons for Allowance

One of the primary purposes of the change in Section 1.109 is to improve the quality and reliability of issued patents by providing a complete file history which should clearly reflect, as much as is reasonably possible, the reasons why the application was allowed. Such information facilitates evaluation of the scope and strength of a patent by the patentee and the public and may help avoid or simplify litigation of a patent.

The practice of stating the reasons for allowance is not new and the rule merely formalizes the examiner's existing authority to do so and provides applicants an opportunity to comment upon any such statement of the examiner.

When the examiner determines that it is necessary or desirable, a "Statement of Reasons for Allowance" will be prepared. The "Statement" will usually be an attachment to either a notice of allowability (PTOL—327) or Examiner's Amendment (PTOL—37). Any comments considered necessary by applicant must be submitted no later than the issue fee and should preferably *accompany* the issue fee. Submission with the issue fee avoids any delay in the processing of the application and avoids the necessity to associate the comments with the application while it is in issue except at the time the file must be pulled to record the payment of the issue fee. Such comments will be entered in the application file by the Allowed Files Branch with an appropriate notation on the "contents" list of the file wrapper, but will not be reviewed by the examiner.

Oral Hearings Before Board of Appeals

Section 1.194 clarifies the circumstances in which oral hearings should be requested and provides for oral arguments by, or on behalf of, primary examiners in certain appeals.

Under Section 1.194, the following procedures will be in effect:

1) In accordance with Section 1.192, appellants who desire an oral hearing must request the same at the time of filing the appeal brief.
2) If appellant has requested an oral hearing and the primary examiner intends to present an oral argument, the last paragraph of the examiner's answer will indicate this intention.
3) Notice of the oral hearing will be given to the appellant and, at the same time, to the primary exam-

iner in those cases in which the primary examiner has indicated an intention to present an oral argument.

4) After an oral hearing has been confirmed and the date set as provided in Section 1.194(c), the application file will be delivered to the examiner via the appropriate Group Director at least one week prior to the date of the hearing for those cases in which the examiner is expected to be present at the hearing. In those cases where the Board requests the presentation of an oral argument by, or on behalf of, the primary examiner, the appellant will be so notified. The Board's request for an oral argument may, where appropriate, indicate specific points or questions to which the argument should be particularly directed. The application file will be returned to the Board before the hearing.

5) In those appeals in which an oral hearing has been confirmed and either the primary examiner or the Board has indicated a desire for oral argument, such oral argument may be presented whether or not appellant appears.

Protests and Public Use Proceedings

Amended sections 1.291 and 1.292 give greater recognition to the value of written protests and public use petitions and are intended as an aid in avoiding the issuance of invalid patents.

Under sections 1.291 (b) and (c) and 1.292(b), the following procedures will be observed:

1) Only in those instances where it has not been possible to serve protest papers upon the applicant, attorney or agent, should duplicates of the papers submitted be provided. In this case the appropriate examining group will attempt to get the duplicate copy to the applicant, attorney or agent. However, every effort should be made by the protester to effect service.

2) Citations of prior art and any papers related thereto may be entered in the file after a patent has been granted by submitting them to the attention of the Record Room, where they will be entered without comment by the Office. If after diligent effort it has not been possible to serve the prior art citations and related papers on the patentee, his attorney or agent, duplicate copies should be submitted in which case the Record Room will attempt to get the duplicate copy to the owner of record.

3) When public use petitions and accompanying papers are submitted they, or a notice in lieu thereof, will be entered in the application file. Duplicate copies should be submitted only when, after diligent effort, it has not been possible for petitioner to serve a copy of the petition on the applicant, his attorney or agent in which case the Office of the Solicitor will attempt to get the duplicate copy to the applicant, his attorney or agent.

4) To ensure consideration by the examiner, protests should be timely submitted, i.e., before final rejection or allowance. Consideration of protests filed after final rejection or allowance will depend upon the relevance of the prior art documents and the point in time at which they are submitted. Documents which clearly anticipate or render obvious one or more claims will not knowingly be ignored. If protests are not timely submitted or if they fail to comply with section 1.291(a) as to the submission of a copy of each prior art document relied upon, they will be acknowledged and referred to the examiner having charge of the subject matter involved for entry in the application file and such consideration as seems warranted.

In each instance where an examiner considers but does not cite on form PTO—892 specific prior art referred to in a protest, the examiner will place a notation in the protest paper adjacent to the reference which will include his or her initials and the term "checked."

Additional future guidelines as to protest procedures may be developed after gaining experience with the new practice.

Mar. 18, 1977. C. MARSHALL DANN,
Commissioner of Patents and Trademarks.

[957 O.G. 11]

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(81) Further Guidelines Relating to 37 CFR 1.175 and 1.291, as Amended Effective March 1, 1977

The experience with the above revised rules since their effective date has indicated the desirability of further guidelines relating to the manner in which they are to be implemented. The following guidelines are supplemental to those which have already been provided in the publication of the rules in the Federal Register of January 28, 1977 (42 F.R. 5588) (955 O.G. 1054, February 22, 1977), and in the earlier Guidelines published at 957 O.G. 11 on April 12, 1977. Copies of the latter two *Official Gazette* publications appear as items 59 and 60 of the current "Consolidated Listing of Recent Official Gazette Notices" published at 966 O.G. 22–32. The present guidelines are also supplemental to the appropriate sections of the Manual of Patent Examining Procedure, e.g., Sections 1401–1401.12 relating to reissue, and Section 1309.02 relating to protests. Sections 721 and 721.01 of the MPEP contain guidelines to be followed if either a reissue or other application, or a protest relative to any application, raises questions of "fraud" or "violation of the duty of disclosure." Accordingly, the above-noted materials should be consulted in addition to these further guidelines, which are in themselves not intended to completely treat the subjects involved. For the most part, the guidelines herein merely identify and clarify existing requirements and practices. The Patent and Trademark Office has a general study underway of the procedures for handling reissue applications and protests which may result in future modifications in these guidelines.

Section 1.175(a)(4) of the revised rules recognizes that reissues may be filed to have the patentability of the original patent, without changes therein, considered in view of prior art or other information relevant to patentability which was not previously considered by the Office.

The experience to date reveals the need to clarify what should be filed by the applicant in order to seek the reexamination contemplated by sub-section (a)(4) and also the type and content of the examination which the examiner will give to applications filed under sub-section (a)(4).

First, sub-section (a)(4) does *not* contemplate, or permit, the filing of a reissue application without an oath or declaration. To the contrary, an oath or declaration is required, and such oath or declaration *must* comply with each of sub-sections (a)(4), (a)(5), and (a)(6). Thus, under sub-section (a)(4) the oath or declaration must particularly specify the "prior art or other information relevant to patentability, not previously considered by the Office," which the reissue applicant considers "might cause the examiner to deem the original patent wholly or partly inoperative or invalid." The reissue oath or declaration must also request, under sub-section (a)(4), that "if the examiner so deems, the applicant be permitted to amend the patent and be granted a reissue patent."

Under sub-section (a)(5), the reissue oath or declaration, including those filed under sub-section (a)(4), must particularly specify "the errors or what might be deemed to be errors relied upon, and how they arose or occurred." This sub-section has two specific requirements, *both of which must be complied with* in, or by, the reissue oath or declaration. Thus, insofar as (a)(4) reissue oaths or declarations are concerned, the oath or declaration must particularly specify "what might be deemed to be errors." For example, if the reissue applicant is seeking reexamination in view of particular prior art or other information, the reissue oath or declaration must point out "what might be deemed to be errors" in patentability in view of such prior art or other information. More

specifically, the oath or declaration, in appropriate circumstances, might state that some or all claims might be deemed to be too broad and invalid in view of references X and Y which were not of record in the patented files. Usually, a general statement will suffice. But where appropriate, such as where the pertinence of the new references X and Y are not evident, more specificify about "what might be deemed to be errors" should be provided. Of course, the reissue applicant does *not* have to, and presumably does *not*, agree that "errors" exist. However, the reissue applicant does have to, in the reissue oath or declaration of the sub-section (a)(4) type, particularly specify "what might be deemed to be errors relied upon."

In addition to specifying "what might be deemed to be errors relied upon," sub-section (a)(5) also requires "particularly specifying" "how they arose or occurred." This means, of course, that the reissue oath or declaration must specify the manner in which that which "might be deemed to be errors" "arose or occurred." For example, if the (a)(4) reissue is being filed for reexamination in view of prior art or other information, the reissue oath or declaration must indicate when and the manner in which the reissue applicant became aware of the possible error in the patent, e.g., third party allegation, discovery of prior art or other information subsequent to issuance of patent, knowledge of prior art or other information before issuance of patent with significance being brought out after issuance by third party, through allegations made in litigation involving the patent, etc. It is particularly important that the reissue oath or declaration adequately specify how "what might be deemed to be errors" arose or occurred. If the reissue oath or declaration does not particularly specify "how," i.e., the manner in which any possible errors arose or occurred, the Office will be unable to adequately evaluate reissue applicant's statement in compliance with (a)(6) that the "errors, if any, arose 'without any deceptive intention' on the part of the applicant."

Sub-section (a)(6) specifically requires that the reissue oath or declaration, including those filed under sub-section (a)(4), contain the averment that the "errors, if any, arose 'without any deceptive intention' on the part of the applicant." This requirement must not be overlooked in filing since the requirement for an absence of "deceptive intention" is a necessary part of any reissue application, including those of the (a)(4) type.

The significance and importance of sub-sections (a)(5) and (a)(6) must not be overlooked or minimized insofar as reissue oaths or declarations are concerned, including those filed under sub-section (a)(4). These sub-sections, to a large extent, enable the Office to make its determination required by statute that any error is "without any deceptive intention."

In addition to meeting the requirements of Sections 1.175 (a)(4)–(a)(6) insofar as the reissue oath or declaration is concerned, the reissue applicant, at the time of filing the reissue application, including the (a)(4) type reissue application, must also be aware of the requirements of 37 CFR 1.56, as revised effective March 1, 1977. Reissue applicants may, of course, utilize new Sections 1.97–1.99 to comply with the duty of disclosure required by Section 1.56. While Section 1.97(a) provides for filing of the prior art statement within three months of the filing of the application, reissue applicants are encouraged to file the prior art statement at the time of filing the application in order that such prior art statements will be availale to the public during the two-month period provided by Section 1.176.

In situations in which the patent for which reexamination is being sought is, or has been, involved in litigation, which raised a question material to examination of the reissue application, such as the validity of the patent, or any allegation of fraud, the existence of such litigation must be brought to the attention of the Office at the time of, or shortly after, filing the application, either in the reissue oath or declaration, or in a separate paper, preferably accompanying the application as filed. Litigation begun after filing of the reissue application also should be promptly brought to the attention of the Office. The details and documents from the litigation, insofar as they are "material to the examination" of the reissue application as defined in 37 CFR 1.56(a), should accompany the application as filed, or be submitted as promptly thereafter as possible. For example, the defenses raised against validity of the patent, or charging fraud or inequitable conduct in the litigation, would normally be "material to the examination" of the reissue application. It would, in most situations, be appropriate to bring such defenses to the attention of the Office by filing in the reissue application a copy of the Court papers raising such defenses. As a minimum, the applicant should call the attention of the Office to the litigation, the existence and nature of any allegations relating to validity and/or "fraud" relating to the original patent, and the nature of litigation materials relating to these issues. Enough information should be submitted to clearly inform the Office of the nature of these issues so that the Office can intelligently evaluate the need for asking for further materials in the litigation. Thus, the existence of supporting materials which may substantiate allegations of invalidity or "fraud" should, at least, be fully described, or submitted. The Office is *not*, of course, interested in receiving voluminous litigation materials which are *not* relevant to the Office's consideration of the reissue application. The status of the litigation should be updated in the reissue application as soon as significant events happen in the litigation.

The Examination of Reissue Applications, Including Those Filed Under 37 CFR 1.175(a)(4)

The examination of reissue applications, including those filed under sub-section (a)(4), will be in accordance with Sections 1401–1401.12, M.P.E.P. Attention is particularly directed to Section 1401.09, M.P.E.P. which refers to the two aspects of reissue examination, i.e., examination in the same manner as an original application and examination for compliance with the reissue statute and rules. The purpose of the present guidelines is to supplement those presently in existence and to emphasize certain points, particularly as they relate to reissue applications filed under sub-section (a)(4).

When examining the reissue application the examiner will consider whether or not applicant, in the reissue oath or declaration, has complied with each of the requirements of 37 CFR 1.175. For example, in all reissue applications, the reissue oath or declaration must comply with the requirements of the first sentence of 37 CFR 1.65. When the reissue application is other than the (a)(4) type, the reissue oath or declaration must comply with the appropriate sub-sections (a)(1) to (a)(3) and sub-sections (a)(5) and (a)(6). When the reissue application is filed under sub-section (a)(4), the reissue oath or declaration must also comply with sub-sections (a)(5) and (a)(6). Thus, all reissue applications must comply with sub-sections (a)(5) and (a)(6). If the examination reveals a lack of compliance with any requirement of Section 1.175, e.g., the requirements of sub-sections (a)(5) and/or (a)(6), a rejection will be made on the basis that the reissue oath or declaration is insufficient. See Section 1401.08, M.P.E.P. Under no circumstances will any reissue application be passed for issue without full compliance with 37 CFR 1.175.

Applications filed under sub-section (a)(4) will not, of course, be passed for issue without amendment, but will be rejected as lacking statutory basis for a reissue if *there are no other grounds for rejection*, since 35 U.S.C. 251 does not authorize reissue of a patent unless the patent is deemed wholly or partly inoperative or invalid. If a reissue filed under sub-section (a)(4) is subsequently amended thereby converting it into an application under sub-sections (a)(1) to (a)(3), *a supplemental reissue oath or declaration must be filed containing the appropriate averments*, If such a proper supplemental oath or declaration is not filed, a rejection will be made on the basis that the reissue oath or declaration is insufficient. The supplemental oath or declaration insures compliance with 35

U.S.C. 251 by providing appropriate averments relating to actual errors rather than possible errors.

If the examiner becomes aware of litigation involving the patent sought to be reissued during examination of the reissue application, and applicant has not made the details regarding that litigation of record in the reissue application, the examiner, in the next office action, will inquire regarding the same. The following paragraph may be used for such an inquiry:

> "It has come to the attention of the examiner that the patent sought to be reissued by this application (is) (has been) involved in litigation. Any documents and/or materials, including the defenses raised against validity, or against enforceability because of fraud or inequitable conduct, which would be material to the examination of this reissue application are required to be made of record in response hereto. See 37 CFR 1.175(b)."

If the additional details of the litigation appear to be material to examination of the reissue application, the examiner may make such additional inquiries as necessary and appropriate under 37 CFR 1.175(b).

However, any application which indicates the existence of *a question* of "fraud" or "violation of the duty of disclosure" will be forwarded to the Office of the Assistant Commissioner for Patents pursuant to Section 721.01, M.P.E.P., as soon as the existence of *such question* is appreciated. For example, any reissue application which seeks reexamination in view of material prior art or other information known before issuance of the patent to a person having a duty under 37 CFR 1.56(a) must be forwarded under Section 721.01, M.P.E.P., to the Assistant Commissioner via the Group Director.

The Filing of Protests Under 37 CFR 1.291

The amendments to Section 1.291 reflected the increased value the Office places on appropriate written protests as an aid in avoiding the issuance of invalid patents. The present supplemental guidelines are in addition to those previously published and referred to above.

The nature of the protest, and the timeliness of its submission, are important factors in determining the consideration which is given the protest, and by whom it is considered. Insofar as the question of timeliness is concerned, the original publication of the rules at 955 O.G. 1054, the earlier Guidelines published at 957 O.G. 11, and Section 1309.02, M.P.E.P. adequately treat this question. Protests should obviously be submitted as early in the examination process as possible in order to be of maximum benefit to the Office in its examination of the application involved.

If the protest is being filed with regard to a reissue application, the protest should be filed within the two-month period following announcement of the filing of the reissue application in the Offical Gazette, if it is at all possible to do so. If, for some reason, the protest of the reissue application cannot be filed within the two-month period provided by 37 CFR 1.176, the protest can be submitted at a later time, but protestor must be aware that reissue applications are "special" and a later filed protest may be received after action by the examiner, if submitted later than the two months provided by 37 CFR 1.176. In the event a protest is intended against a reissue application, but cannot be submitted within the two months provided following the O.G. announcement, the protestor can request an additional specified period within which to file the protest, explaining why the additional time is necessary and the nature of the protest intended. A copy of any such request for additional time to protest a reissue application beyond the two months provided must be served on the reissue applicant. The request for additional time should be directed to the appropriate Group Director. The requests for additional time beyond the two months provided will be *critically reviewed as to demonstrated need* before being granted since the delay of examination of a reissue application of another party is being requested. Accordingly, the requests should be made *only where necessary, for the minimum period required* and with a justification establishing the necessity for the extension.

Any protest filed alleging "fraud" or "violation of the duty of disclosure" should be directed to the attention of the Assistant Commissioner for Patents, Building 3, Room 11A–13. Protests based on grounds other than "fraud" or "violation of the duty of disclosure" should be directed to the attention of the Director of the particular examining group in which the application is pending. If the protestor is unable to specifically identify the application to which the protest is directed, but, nevertheless, believes such an application to be pending, the protest should be directed to the attention of the Assistant Commissioner for Patents, Building 3, Room 11A–13, along with as much identifying data for the application as is available.

As indicated in the earlier publications, e.g., Section 1309.02, M.P.E.P., every effort should be made by a protestor to effect service of the protest upon the attorney or agent of applicant who is of record or upon the applicant. The protest filed in the Office should reflect that service has been made. Only in those instances where service is not possible should the protest be filed in duplicate in order that the Office can attempt service. Of course, the copy served upon applicant or applicant's attorney or agent should be accompanied by a copy of each prior art or other document relied upon in the same manner as required by Section 1.291(a) for the Office copy.

The Examiner's Consideration of Protests

Protests other than those alleging "fraud" or "violation of the duty of disclosure" will be received by, or forwarded to, the Group Director of the examining group where the application is, or may be, pending and then referred to the appropriate examiner. If it is then, or later, discovered that a question of "fraud" or "violation of the duty of disclosure" exists, the application and the protest, will be forwarded to the Office of the Assistant Commissioner for Patents pursuant to Section 721.01, M.P.E.P.

If no allegations or questions of "fraud" or "violation of the duty of disclosure" are found to exist, the examiner will consider the protest and report the results of the consideration to the Group Director. If the protest has been timely submitted, i.e., before final rejection or allowance, the examiner will consider each of the prior art or other documents submitted. At least those prior art documents which the examiner relies on in rejecting claims will be made of record by means of form PTO—892. If the examiner does not cite all of the prior art or other documents of form PTO—892, the examiner will place a notation in the protest paper adjacent to the reference to the documents which will include the examiner's initials and the term "checked."

If the protest is filed after final rejection or allowance of the application, the consideration by the examiner will depend upon the relevance of the prior art documents submitted and the point in time at which they are submitted. Documents which clearly anticipate or render obvious one or more claims will not be knowingly ignored. Prosecution of the application will be reopened where necessary. However, protestor must be aware that the likelihood of consideration by the Examiner decreases as the patent issue date approaches. Accordingly, protests must be filed early in order to ensure their consideration.

If the protest is not accompanied by a copy of each prior art or other document relied upon as required by Section 1.291(a), the protestor cannot be assured that the examiner will consider the missing document. However, if the examiner does so, the examiner will either cite the document on form PTO—892 or place a notation in the protest paper adjacent to the reference to the document which will include the examiner's initials and the term "checked."

If, upon considering the protest or any submissions subsequent thereto, the examiner considers it desirable to obtain applicant's comments on the protest before further action, the examiner will offer applicant an oppor-

tunity to file comments within a set period, usually two months.

The following suggested format can be used to offer applicant an opportunity to file comments on the protest:

> "A protest against the issuance of a patent based on this application has been filed under 37 CFR 1.291 on . . . . and a copy (has been indicated as having been served on applicant) (is attached hereto). Any comments or response applicant desires to file before consideration of the protest must be filed by . . . ."

Section 1.291(a) indicates that protests are acknowledged and this acknowledgement will normally be made by the particular office to which the protest is ultimately directed for consideration. Protests alleging "fraud" or "violation of the duty of disclosure" will normally be acknowledged by the Office of the Assistant Commissioner for Patents. Other protests, i.e., those not alleging "fraud" or "violation of the duty of disclosure" will normally be acknowledged by the Group Director of the examining group where the application is, or may be, pending.

If the protest involves an application to which the protestor has access, e.g., a reissue application filed after March 1, 1977, or one in which protestor has been formally granted access, then protestor may monitor the proceedings and file such additional papers as protestor considers appropriate. If protestor has access to the application, protestor may request the Office to supply protestor with copies of Office actions or other documents mailed by the Office. Such a request should be directed to the particular area in which the application is pending, e.g., Office of Assistant Commissioner for Patents, or Director of the particular examining group. The request should explain why protestor needs the copies in question and should indicate an intent on protestor's part to assist the Office in its examination by supplying relevant comments. Normally, the Office will send copies of Office actions to protestors where the protestor indicates an intent to review actions and, if appropriate, comment to the Office on them. However, since protestor has no right to copies of the Office actions or other documents, the granting or denying of such requests will be within the sole discretion of, and for the convenience of the Office.

If the protestor has access to the application, the examiner may communicate with the protestor *in writing* to seek clarification and/or additional information if the examiner considers such clarification and/or additional information necessary to properly consider the protest. The following suggested format can be used by the examiner to seek clarification and/or additional information from a protestor having access to an application:

> "The protest, as filed _____, has been noted. However, clarification and/or additional information is desired. In particular [Examiner explains] any submission of the requested information should be made within ONE MONTH of the date of this letter and the submission must indicate service on applicant."

While the examiner should not normally need clarification and/or additional information from the protestor where the grounds involve only published prior art, e.g., patents, periodicals, etc., under some circumstances it may be necessary for the examiner to seek such clarification and/or additional information. For example, if the date of a reference is in question, or some question of public use is involved, and the information being sought is within the knowledge or control of the protestor, the examiner may find it necessary to communicate with the protestor to obtain the same.

Where the examiner feels that a protestor with access to an application can contribute significantly to the examination process, the protestor may be given a specific period, normally one month, within which to comment on responses submitted by patent applicants to Office actions. Such a comment period should only be provided where it would appear to be of benefit to the examination process and only with the approval of a Supervisory Primary Examiner. Where an applicant agrees to such participation by a protestor or where a Court has suspended litigation for consideration of a related application by the Patent and Trademark Office with an expression of its desire for such protestor participation, it should be more liberally granted.

Where a protestor requests permission to participate in any interview between an applicant and the examiner or requests on its own behalf to have an interview with the examiner, the request should be referred to the Office of the Assistant Commissioner for Patents for action. Normally, protestor participation in interviews with examiners will not be allowed unless special justifying circumstances exist. Where authorized, participation by the protestor in an interview will be according to conditions set down by the Patent and Trademark Office. Normally, any transcript of the interview, if authorized, will be at the expense of the party or parties requesting it and will be arranged by such party or parties. Where Office actions are being sent to a protestor or where a protestor is present for an interview, a copy of the Interview Summary Form and other records made of the interview will be provided to the protestor. Where protestor's participate in an interview, they may submit their own record of the interview which will be made of record in the file.

Interviews relating to a patent application with a protestor will not be permitted without the applicant present.

A protestor with access to an application appealed to the Board of Appeals who intends to file comments or a brief in opposition to appellant's brief should file an indication of such intention within one month after the notice of appeal is filed and serve a copy of the same upon appellant. The indication of intention should state that protestor agrees to file such comments or brief in triplicate, within one month after appellant's brief is filed, and also agrees to serve a copy of the comments or brief upon appellant. If such an indication is not filed and served, or the protestor's comments or brief is not timely filed in triplicate and served, no assurance is given that the Examiner will consider the protestor's comments or brief during the preparation of the Examiner's Answer.

A protestor who participates by the filing of comments or a brief in opposition to appellant's brief may also request, at the time of filing the comments or brief, to appear at any oral hearing. If a protestor does not file such comments or brief, the protestor cannot be present at any oral hearing. If a protestor does file such a request, the Board of Appeals, in its discretion, will decide whether or not the issues on appeal are such that protestor's participation at the hearing would be helpful. The Board of Appeals will notify protestor whether or not the request to appear at the hearing is granted and, if granted, how much time will be permitted. Of course, if appellant does not request an oral hearing, or provides timely notification to the Board and protestor that appellant will not appear, protestor will not be heard.

A copy of any examiner's letter or communication to a protestor will be mailed to applicant at the same time it is mailed to the protestor. While the examiner may communicate *in writing* with a protestor having access to the application, the examiner will *not* communicate orally and protestor must refrain from oral communications with the examiner except to ask purely procedural questions which have no relation to the substance of the protest or the merits of the application, unless specifically authorized *in writing* by the Assistant Commissioner for Patents.

Where the handling of a protest or the handling of a reissue application involved in related litigation requires an inordinately larger than normal amount of work on the part of an examiner and where otherwise warranted, Supervisory Primary Examiners may authorize the use of non-examining time for handling some or all of the examination.

The above guidelines are intended to make clearer the

policies of the Patent and Trademark Office in respect to the handling of reissue applications, protests and "fraud" questions. The Office is especially interested in seeing that the consideration of reissue applications and protests is thorough and fair. It is interested in seeing that protestors have an opportunity to participate in the proceedings in the Office to the extent that such participation is helpful and appropriate in each case. It is also greatly interested in the completeness and accuracy of the file record, including indications whether or not prior art references and information mentioned in the record have been reviewed by the examiner.

The present guidelines which will be incorporated into the M.P.E.P. as soon as possible, when considered in conjunction with those previously issued and the M.P.E.P., should answer many of the questions being raised about the revised rules.

DONALD W. BANNER,
Nov. 13, 1978. *Commissioner of Patents & Trademarks.*

[977 O.G. 11]

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(82) Expedited Processing of Reissue Applications and Applications Having Issues of Fraud or Failure to Comply With The Duty of Disclosure

The Patent and Trademark Office has been experiencing increasing delays in the examination of reissue applications and other applications in which charges or questions of fraud or failure to comply with the duty of disclosure have been raised or are apparent on the record. Consideration of these charges involves considerable expenditures of resources and time. They also tend to delay prompt consideration on the merits in view of the prior art, etc. Considerable duplication of effort and expenditures of resources and time also may occur when the Office considers applications in circumstances where the same issues are concurrently being considered in Court.

Deferral of Fraud Issues

Effective immediately, the Office is instituting a policy of delaying consideration of issues of fraud or failure to comply with the duty of disclosure in any application until all other issues are settled.

Accordingly, under this procedure, applications having issues of fraud or failure to comply with the duty of disclosure will continue to be referred to the Office of the Assistant Commissioner for Patents, but will then be promptly returned, along with any appropriate examining instructions, to the Director of the Examining Group for immediate action by the Examiner. Decisions on Petitions to Strike applications pursuant to 37 CFR 1.56(d) will be deferred pending resolution of the patentability issues before the Examiner. Any such Petitions to Strike filed after the Office of the Assistant Commissioner has initially reviewed the application and returned it for immediate action will be acknowledged by the Examining Group Director and action on the Petition will be deferred pending completion of the patentability issues before the Examiner. Examiners will note in their Office actions the existence of issues of fraud or failure to comply with the duty of disclosure without commenting on the substance of such issues and will indicate that the issues will be considered after all other matters have been disposed of. Matters other than fraud or failure to comply with the duty of disclosure raised in a Petition to Strike, e.g., patentability in light of a reference, will be treated by the Examiner or other appropriate official. Petitions relating to procedural matters involving the examination of the applications, e.g., requests for protestor participation in interviews, will be decided by the appropriate Examining Group Director. Applications which have been referred to the Office of the Assistant Commissioner and which are required to be returned thereto before allowance or after abandonment of the application will have a notation placed on the face of the application file by the Office of the Assistant Commissioner requiring such return.

Suspension of Action Where There is Concurrent Litigation

In order to avoid duplication of effort, actions in applications in which there is an indication of concurrent litigation will be suspended automatically unless and until it is evident to the examiner, or the applicant indicates, that: (1) a stay of the litigation is in effect; (2) the litigation has been terminated; (3) there are no significant overlapping issues between the application and the litigation; or (4) it is applicant's desire that the application be examined at that time.

Expedited Examination of Reissues

All reissue applications, except those under suspension because of litigation, will be taken up for action ahead of other "special" applications; this means that all issues not deferred will be treated and responded to *immediately.* Furthermore, reissue applications involved in "stayed litigation" will be taken up for action in advance of other reissue applications.

Insofar as reissue applications for patents in litigation are concerned, the Office is presently considering modifications to the rules to provide for their examination within the two-month waiting period now provided by Section 1.176. Until appropriate modifications are made to the rules, the Office will entertain petitions under 37 CFR 1.183 to waive the delay period of 37 CFR 1.176. In addition, the Office is presently considering requiring the prompt disclosure of the existence of litigation related to a pending application.

Time monitoring systems are being put into effect which will closely monitor the time used by applicants, protestors, and examiners in processing reissue applications of patents involved in litigation in which the court has stayed further action.

Applicants in reissue applications involved in litigation which has been stayed, dismissed, etc. for consideration by the Patent and Trademark Office will normally be given one month to respond to Office actions in those situations where the Office determines that the reissue applicant can readily prepare a response in such time. This one month period may be extended upon a showing of clear justification. Of course, up to three months may be set for response if the Examiner determines such a period is justified.

Applicants and protestors submitting papers for entry in reissue applications of patents involved in litigation are requested to mark the outside envelope and the top right hand portion of the paper with the words *"REISSUE LITIGATION"* and with the unit of the PTO in which the reissue application is located—e.g., Assistant Commissioner for Patents, Board of Appeals or Examining Group. The notations preferably should be written in a bright color with a felt point marker. Papers marked *"REISSUE LITIGATION"* will be given special attention. Also, the PTO will place a prominent notation on the application file to indicate the existence of litigation.

The purpose of these changes is to reduce the time between filing and final action insofar as possible while still giving all parties sufficient time to be heard. This notice is supplemental to, and in some respects modifies, the earlier published notices on this subject and particularly the notice published at 977 O.G. 11 on December 12, 1978.

DONALD W. BANNER,
June 5, 1979. *Commissioner of Patents and Trademarks.*

[983 O.G. 24]

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(83) Prior Art Cited by Patent Offices in Other Countries

Section 1.56 of Title 37 of the Code of Federal Regulations requires patent applicants and others associated with the prosecution of a patent application before the U.S. Patent and Trademark Office to call to the Office's attention information which is material to examination. Where related or corresponding patent applications have

been filed in other countries, prior art may be cited by the Patent Offices of those other countries in connection with the examination of the applications filed there. Where prior art is cited by those other Patent Offices while the U.S. application is pending, citations which are material to examination in this country and known to any of the individuals covered by Section 1.56 must be called to the attention of this Office. Attorneys and agents are reminded of their obligations in this respect.

It is suggested, of course, that such prior art be cited to the U.S. Patent and Trademark Office in a prior art statement which complies with the provisions of Section 1.97–1.99 of 37 CFR.

DONALD W. BANNER,
Apr. 23, 1979. *Commissioner of Patents and Trademarks.*

[982 O.G. 36]

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(84) **Extensions of Time in Reexamination Proceedings**

This notice is intended to clarify extension of time practice as it relates to reexamination proceedings, and supplement the provisions of Section 2265 of the Manual of Patent Examining Procedure (MPEP).

The provisions of 37 CFR 1.136(a) and (b) are *NOT* applicable to reexamination proceedings under any circumstances . Public Law 97-247 amended 35 U.S.C. 41 to authorize the Commissioner to charge fees for extensions of time to take action in an "application". A reexamination proceeding does not involve an "application". 37 CFR 1.136 authorizes extensions of the time period only in an application in which an applicant must respond or take action. There is neither an "application", nor an "applicant" involved in a reexamination proceeding.

Requests for an extension of time to file a patent owner's statement under 37 CFR 1.530 or respond to any Office action in a reexamination proceeding must be filed under 37 CFR 1.550(c). These requests for an extension of time will be granted only for sufficient cause and must be filed on or before the day on which action by the patent owner is due. In no case will mere filing of a request for extension of time automatically effect any extension. Although the appeal provisions of 37 CFR 1.192(a), 1.197(b), and 1.304(a) set time periods applicable to reexamination as well as application proceedings, they also include a further proviso making these time periods subject to the extension provisions of 37 CFR 1.136. However, for the reasons set forth above, the extension provisions of 37 CFR 1.136 are limited to application proceedings and do not apply to reexamination proceedings. Therefore, any request for an extension of time in a reexamination proceeding to file a brief or reply brief, a request for reconsideration or rehearing, or a notice and reasons of appeal to the U.S. Court of Appeals for the Federal Circuit or for commencing a civil action, will be considered under the provisions of 37 CFR 1.550(c). The regulations setting a time period in which any of these actions must be taken set a time for reply within the meaning of 37 CFR 1.550(b), which time can be extended under 37 CFR 1.550(c).

The extension-of-time practice in reexamination proceedings in which a final Office action has been mailed continues to be reflected in MPEP Section 2265. That is, the after-final practice in reexamination proceedings did not change Oct. 1, 1982, and the automatic extension of time policy for response to a final rejection and associated practice are still in effect in reexamination proceedings.

Extensions of time for a requester of a reexamination, who is not the patent owner, are available only in rare circumstances. A request for an extension of the time period to file a petition from the denial of a request for reexamination can only be entertained by filing a petition under 37 CFR 1.183 with appropriate fee to waive the time provisions of 37 CFR 1.515(c). No extensions will be permitted to the two-month time for filing a reply by the requester under 37 CFR 1.535. This two-month period is set by statute (35 U.S.C. 304) and cannot be extended.

GERALD J. MOSSINGHOFF,
Feb. 17, 1983. *Commissioner of Patents and Trademarks.*

[1028 OG 18]

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(85) **Priority Claims Based on Inventors Certificates**

Pursuant to the provisions of 35 U.S.C. 119, last paragraph (as amended July 28, 1972), 37 CFR 1.55(c) requires that when an applicant wishes to claim a right of priority on the basis of an application for an inventor's certificate, ". . . the applicant or his attorney or agent, when submitting a claim for such right . . . shall include an affidavit or declaration including a specific statement that, upon an investigation, he has satisfied himself that to the best of his knowledge the applicant, when filing his application for the inventor's certificate, had the option to file an application either for a patent or for an inventor's certificate as to the subject matter of the identified claim or claims forming the basis for the claim of priority."

As such, it has been and remains the position of the Patent and Trademark Office that, in accordance with 35 U.S.C. 119, application for inventors' certificates shall give rise to a right of priority only when the country in which they are filed gives to applicants, at their discretion, the right to apply, on the same invention, either for a patent or for an inventor's certificate. The affidavit or declaration specified under 37 CFR 1.55(c) is only required for the purpose of ascertaining whether, in the country where the application for an inventor's certificate originated, this option generally existed for applicants with respect to the particular subject matter of the invention involved. The requirements of 35 U.S.C. 119 and 37 CFR 1.55(c) are not intended, however, to probe into the eligibility of the particular applicant to exercise the option in the particular priority application involved.

It is recognized that certain countries that grant inventors' certificates also provide by law that their own nationals who are employed in state enterprises may only receive inventors' certificates and not patents on inventions made in connection with their employment. This will not impair their right to be granted priority in the United States based on the filing of the inventor's certificate.

Accordingly, affidavits or declarations filed pursuant to 37 CFR 1.55(c) need only show that in the country in which the original inventor's certificate was filed, applicants generally have the right to apply at their own option either for a patent or an inventor's certificate as to the particular subject matter of the invention.

C. MARSHALL DANN,
Aug. 17, 1977. *Commissioner of Patents and Trademarks.*

[962 O.G. 14]

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(86) **Requirements for Priority Documents, Priority Based on Application for Industrial Design**

In the Federal Republic of Germany, an application for protection of an industrial design may be accompanied by either a model or a drawing. It is understood that German residents file such applications with their local judicial authority ("Amtsgericht") rather than with the German Patent Office in Munich.

Questions have been raised in this connection as to:

(1) What sort of priority document under 35 U.S.C. 119 is required when the original filing has comprised a model rather than a drawing, and

(2) Whether it is necessary where the original filing was with a local judicial authority to obtain also a certificate from the national patent office.

As to the first question, the Patent and Trademark Office will receive under 35 U.S.C. 119, as evidence of an earlier filed design application which included the deposit of a model, drawings or acceptable photographs of the deposited model faithfully reproducing the design embodied therein together with other required information, certified by an official of the court or office with which the application was originally filed.

No additional certification by the national patent office will be required. Article 4D(3) of the Paris Convention refers to certification ". . . by the authority which received such application . . ." so the reference in 35 U.S.C. 119 to "patent office" will be construed to extend also to the authority in charge of the design register.

C. MARSHALL DANN,
Aug. 15, 1977. *Commissioner of Patents and Trademarks.*

[962 O.G. 14]

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(87) **Right of Priority (35 U.S.C. 119) Based on a Foreign Application Filed Under a Bilateral or Multilateral Treaty**

Under Article 4A of the Paris Convention for the Protection of Industrial Property (21 UST 1583; 24 UST 2140; TIAS 6923, 7727; 852 O.G. 511) a right of priority may be based either on an application filed under the national law of a foreign country adhering to the Convention or on a foreign application filed under a bilateral or multilateral treaty concluded between two or more such countries. Examples of such treaties are the Hague Agreement Concerning the International Deposit of Industrial Designs, the Benelux Designs Convention, and the Libreville Agreement of September 13, 1962, relating to the creation of an African and Malagasy Industrial Property Office. The Convention on the Grant of European Patents and the Patent Cooperation Treaty will be further examples of such treaties once they enter into force.

The Priority Claim

In claiming priority of a foreign application previously filed under such a treaty, certain information must be supplied to the Patent and Trademark Office. In addition to the application number and the date of the filing of the application, the following information is required: (1) the name of the treaty under which the application was filed, (2) the name of at least one country other than the United States in which the application has the effect of, or is equivalent to, a regular national application, and (3) the name and location of the national or intergovernmental authority which received such application.

Certification of the Priority Papers

Section 119 of Title 35 of the United States Code requires the applicant to furnish a certified copy of priority papers. Certification by the authority empowered under a bilateral or multilateral treaty to receive applications which give rise to a right of priority under Article 4A(2) of the Paris Convention will be deemed to satisfy the certification requirement.

C. MARSHALL DANN,
Aug. 9, 1977. *Commissioner of Patents and Trademarks.*

[962 O.G. 2]

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(88) **Abstract of the Disclosure**

This notice is intended to announce a change in the examining practice concerning review of the abstract for compliance with the guidelines set forth in MPEP 608.01(b).

At present, the examiner is instructed to review the abstract for compliance with the guidelines when passing the case to issue, making any necessary revisions by examiner's amendment. This policy has led to the necessity for many changes by the examiner which could have and should have been made at an earlier point in the prosecution. For example, abstracts in excess of the 250 word limit require cancellation and/or rewriting of portions thereof. This 250 word limit is strictly enforced since it represents a requirement of the printing process and the printed patent format designed to present a maximum amount of information concerning a patent on a single page.

Effective immediately, examiners are to require correction of the abstract at the earliest point in the prosecution that non-compliance with the guidelines is detected. Applicants are expected to observe the guidelines in drafting the abstract and correct any defect that is identified in an Office action. Applicants are encouraged to make the necessary corrections not only to relieve the examiner of this burden, but also to help avoid any potential conflict with respect to altering the scope of the enabling disclosure. In this regard, it should be noted that the abstract of the disclosure has been interpreted to be a part of the specification for the purposes of compliance with paragraph 1 of 35 USC 112. *In re Armbruster,* 512 F2d 676, 185 USPQ 152 (CCPA 1975). However, although it is preferable for applicant to make any necessary changes, the examiner will retain the authority and responsibility for reviewing, editing and revising the abstract of the disclosure at the time of allowance of the application to assure compliance with the guidelines.

Section 608.01(b) of the Manual of Patent Examining Procedures will be amended appropriately.

WILLIAM FELDMAN,
Dec. 30, 1977. *Deputy Assistant Commissioner for Patents.*

[967 O.G. 2]

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(89) **Supplemental Guidelines for The Implementation of 37 CFR 1.109—Reasons for Allowance**

A recent review of recorded statements of reasons for allowance indicates the need for a better understanding regarding implementation of new Rule 109 (37 CFR 1.109).

These guidelines are supplemental to those published in the **Official Gazette** at 957 O.G. 11 on April 12, 1977 and amplified in Section 1302.14 MPEP, Rev. 52, April 1977.

In determining whether reasons for allowance should be recorded the primary consideration lies in the first sentence of the Rule.

> "If the examiner believes that the record of the prosecution *as a whole* does not make clear his reasons for allowing a claim or claims, the examiner may set forth such reasoning." (Emphasis added.)

In most cases the examiner's actions and the applicant's response make evident the reasons for allowance, satisfying the "record as a whole" proviso of the rule. This is particularly true when applicant fully complies with 37 CFR 1.111(b) and (c), 37 CFR 1.119 and 37 CFR 1.133(b). Thus where the examiner's actions clearly point out the reasons for rejection and the applicant's response explicitly represents reasons why claims are patentable over the reference, the reasons for allowance are in all probability evident from the record and no statement should be necessary. Conversely, where the record is not explicit as to reasons, but allowance is in order, then a logical extension of 37 CFR 1.111, 1.119 and 1.133 would dictate that the examiner should make reasons of record and such reasons should be specific.

Where specific reasons are recorded by the examiner, care must be taken to insure that such reasons are accurate, precise and do not place unwarranted interpretations, whether broad or narrow, upon the claims. The examiner should keep in mind the possible misinterpretations of his statement that may be made and its possible estoppel effects. Each statement should include at least:

(1) the major difference in the claims not found in the prior art of record, and (2) the reasons why that difference is considered to define patentably over the prior art if either of these reasons for allowance is not clear in the record. The statement is not intended to necessarily state all the reasons for allowance or all the details why claims are allowed and should not be written to specifically or impliedly state that all the reasons for allowance are set forth.

Under the rule, the examiner must make a judgement of the individual record to determine whether or not reasons for allowance should be set out in that record. These guidelines, then, are intended to aid the examiner in making that judgement. They comprise illustrative examples as to applicability and appropriate content. They are not intended to be exhaustive.

Examples of When It Is Likely That a Statement Should Be Added to the Record

1. Claims are allowed on the basis of one (or some) of a number of arguments and/or affidavits presented and a statement is necessary to identify which of these were persuasive, for example:
   a. When the arguments are presented in an appeal brief.
   b. When the arguments are presented in an ordinary response with or without amendment of claims.
   c. When both an affidavit under 37 CFR 1.131 and arguments under 102 and 103 are presented.
2. First action issue:
   a. Of non-continuing application wherein claims are very close to cited prior art and differences have not been discussed elsewhere.
   b. Of continuing applications wherein reasons for allowance are not apparent from the record in the parent case or clear from preliminary filled matters.
3. Withdrawal of a rejection for reasons not suggested by applicant, for example:
   a. As a result of an appeal conference.
   b. When applicant's arguments have been misdirected or are not persuasive alone and the Examiner comes to realize that more cogent argument is available.
   c. When claims are amended to avoid a rejection under 35 USC 102 but arguments (if any) fail to address the question of obviousness.
4. Allowance after remand from the Board of Appeals.
5. Allowance coincident with the citation of newly found references that are very close to the claims, but claims are considered patentable thereover:
   a. When reference is found and cited (but not argued) by applicant.
   b. When reference is found and cited by Examiner.
6. Where the reasons for allowance *are* of record but in the Examiner's judgement, are unclear (e.g. spread throughout the file history) so that an unreasonable effort would be required to collect them.
7. Allowance based on claim interpretation which might not be readily apparent, for example:
   a. Article claims in which method limitations impart patentability.
   b. Method claims in which article limitations impart patentability.
   c. Claim is so drafted that "non-analogous" art is not applicable.
   d. Preamble or functional language "breathes life" into claim.

Examples of Statements of Suitable Content

1. The primary reason for allowance of the claims is the inclusion of .03 to .05 percent nickel in all the claims. Applicant's second affidavit, in example 5 shows unexpected results from this restricted range.
2. During two telephonic interviews with applicant's attorney, Mr.—on 5/6 and 5/10/77, the Examiner stated that Applicant's remarks about the placement of the primary teaching's grid member were persuasive, but he pointed out that applicant did not claim the member as being within the reactor. Thus, an amendment doing such was agreed to.
3. The instant application is deemed to be directed to an unobvious improvement over the invention patented in Pat. No. 3,953.224. The improvement comprises baffle means *12* whose effective length in the extraction tower may be varied so as to optimize and to control the extraction process.
4. Upon reconsideration, this application has been awarded the effective filing date of S.N. _____. Thus the rejection under 35 USC 102(d) and 103 over Belgian Patent No. 757,246 is withdrawn.
5. The specific limitation as to the pressure used during compression was agreed to during the telephone interview with applicant's attorney. During said interview, it was noted that applicants contended in their amendment that a process of the combined applied teachings could not result in a successful article within the amended pressure range. The Examiner agreed to rely on this statement (see page 3, bottom, of applicant's amendment), and the case was allowed.
6. In the Examiner's opinion, it would not be obvious to a person of ordinary skill in the art first to eliminate one of top members 4, second to eliminate plate 3, third to attach remaining member 4 directly to tube 2 and finally to substitute this modified handle for the handle 20 of Nania (see Fig. 1) especially in view of applicant's use of term "consisting."

Examples of Statements That Are Not Suitable as to Content

1. The 3 roll press couple has an upper roll 36 which is swingably adjustable to vary the pressure selectively against either of the two lower rolls. (Note: The significance of this statement may not be clear if no further explanation is given.)
2. The main reasons for allowance of these claims are applicant's remarks in the appeal brief and an agreement reached in the appeals conference.
3. The instant composition is a precursor in the manufacture of melamine resins. A thorough search of the prior art did not bring forth any compositions which corresponds to the instant compositions. The Examiner in the art also did not know of any art which could be used against the instant composition.
4. Claims 1–6 have been allowed because they are believed to be both novel and unobvious.

The examiner should *not* include in his statement any matter which does not relate directly to the reasons for allowance. For example:

5. Claims 1 and 2 are allowed because they are patentable over the prior art. If applicants are aware of better art than that which has been cited, they are required to call such to the attention of the Examiner.
6. The reference Jones discloses and claims an invention similar to applicant's. However, a comparison of the claims, as set forth below, demonstrates the conclusion that the inventions are non-interfering.

WILLIAM FELDMAN,
Jan. 24, 1978. *Deputy Assistant Commissioner for Patents.*

[968 O.G. 6]

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(90) **Practice/Re: New Grounds of Rejection After Appeal Brief Has Been Filed**

A new practice has been implemented in the Patent Examining Corps to promote uniformity and adherence to guidelines in situations where a new ground of rejection is made in an Office action after an appeal brief has been filed. Under this practice Supervisory Patent Examiner approval is required for any new ground of rejection made after the filing of an Appeal Brief. This

requirement extends to new grounds of rejection made either in an examiner's answer or in an Office action reopening prosecution. Evidence of that approval should appear on applicant's copy of the Office action or answer as well as the record copy. Consultation with or approval by the Group Director is no longer required in these situations.

This new practice does not alter the existing guidelines for reopening prosecution (MPEP) 706.7(e) or for making a new ground of rejection in an examiner's answer (MPEP 1208.01). Appropriate modification will be made to applicable Sections of the Manual of Patent Examining Procedure in a future revision.

WILLIAM FELDMAN,
Deputy Assistant Commissioner for Patents.

[970 O.G. 94 (5-23-78)]

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(91) **Commercial Success and Other Considerations Bearing on Obviousness**

In order to clarify Office practice relative to considerations of commercial success and other items bearing on obviousness, the following changes are made in the Manual of Patent Examing Procedure.

In section 716, subsection 4, change the sub-title and first paragraph to read as follows:

4. *Commercial Success and Other Considerations Bearing on Obviousness*

Affidavits or declarations submitting evidence of commercial success, long-felt but unsolved needs, failure of others, etc., must be considered by the Examiner in determining the issue of obviousness of claims for patent-ability under 35 U.S.C. 103. Such evidence might be utilized to give light to circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or unobviousness, such evidence may have relevancy, *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966) ; *In re Palmer.* 172 USPQ 126, 451 F.2d 1100 (CCPA 1971) ; *In re Fielder and Underwood,* 176 USPQ 300, 471 F.2d 640 (CCPA 1973). The *Graham* v. *John Deere* pronouncements on the relevance of commercial success, etc. to a determination of obviousness were not negated in *Sakraida* v. *Ag Pro,*425 U.S. 273, 189 USPQ 449 (1976) or *Andersons Black Rock, Inc.* v. *Pavement Salvage Co., Inc.*, 396 U.S. 57, 163 USPQ 673 (1969), where reliance was placed upon *A & P Tea Co.* v. *Supermarket Corp.*, 340 U.S. 147 87 USPQ 303 (1950). See *Dann* v. *Johnston,* 425 U.S. 219, 189 USPQ 257 (1976), at 261, footnote 4.

The weight attached to evidence of commercial success, etc. by the Examiner will depend upon its materiality to the issue of obviousness and the amount and nature of the evidence. Note the great reliance apparently placed on this type of evidence by the Supreme Court in upholding the patent in *United States* v. *Adams,* 383 U.S. 39, 148 USPQ 479 (1966).

Evidence of commercial success, etc. must be commensurate in scope with the scope of the claims [*In re Tiffin,* 448 F.2d. 791. 171 USPQ 294 (1971)]. Further in considering evidence of commercial success, care should be taken to evaluate to the extent possible from the evidence submitted, whether the commercial success alleged is directly derived from the invention claimed, in a marketplace where the consumer is free to choose on the basis of objective principles, and that such success is *not* the result of heavy promotion or advertising, shift in advertising consumption by purchasers normally tied to applicant or assignee, or other business events extraneous to the merits of the claimed invention, etc. [*In re Mageli, et al.* 176 USPQ 305, (CCPA 1973)]; [*In re Noznick, et al,* 178 USPQ 43, (CCPA 1973)].

Similarly in considering evidence of longfelt but unsolved needs and failure of others, care should be taken to determine whether such failures were due to lack of interest or appreciation of an invention's potential or marketability rather than want of technical knowhow [*Scully Signal Co.* v. *Electronics Corp. of America,* 196 USPQ 657 (1st Cir. 1977)].

In section 716, subsection 4, add the following as the last paragraph:

If, after evaluating the evidence, the examiner is still not convinced that the claimed invention is patentable, his action should include a simple statement to that effect, identifying the reason(s) (e.g., evidence of commercial success not convincing, the commercial success not related to the technology, etc.).

RENE D. TEGTMEYER,
July 10, 1978. *Assistant Commissioner for Patents.*

[973 O.G. 34]

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(92) **Handling of Dependent Claims by the Examiner**

Effective immediately, the following practice will be followed by patent examiners when making reference to a dependent claim—either singular or multiple. The new practice is intended to simplify and streamline our current practice (MPEP 608.01(n), Revision 55, January 1978) which experience indicates was unnecessarily burdensome in many cases.

1. When identifying a singular dependent claim which does not include a reference to a multiple dependent claim, either directly or indirectly, reference should be made only to the number of the dependent claim.
2. When identifying the embodiments included within a multiple dependent claim, or a singular dependent claim which includes a reference to a multiple dependent claim, either directly or indirectly, each embodiment should be identified by using the number of the claims involved, starting with the highest, *to the extent necessary* to specifically identify each embodiment.
3. When all embodiments included within a multiple dependent claim or a singular dependent claim which includes a reference to a multiple dependent claim, either directly or indirectly, are subject to a common rejection, objection or requirement, reference may be made only to the number of the dependent claim.

The following table illustrates the intended differences between current and the revised practice where each embodiment of each claim must be treated on an individual basis:

Claim Number	Claim Dependency	Identification: Current Practice	Identification: Revised Practice
1	Independent	1	1
2	Depends from 1	2/1	2
3	Depends from 2	3/2/1	3
4	Depends from 2 or 3	4/2/1	4/2
		4/3/2/1	4/3
5	Depends from 3	5/3/2/1	5
6	Depends from 2, 3 or 5	6/2/1	6/2
		6/3/2/1	6/3
		6/5/3/2/1	6/5
7	Depends from 6	7/6/2/1	7/6/2
		7/6/3/2/1	7/6/3
		7/6/5/3/2/1	7/6/5

When all embodiments in a multiple dependent claim situation (claims 4, 6 and 7 above) are subject to a common rejection, objection or requirement, reference may be made only to the number of the individual dependent claim. For example, if 4/2 and 4/3 were subject to a common ground of rejection, reference should be made only to claim 4 in the statement of that rejection.

The provisions of 35 USC 132 require that each Office action make it explicitly clear what rejection, objec-

tion and/or requirement is applied to each claim embodiment.

WILLIAM FELDMAN,
Oct. 17, 1978. *Deputy Assistant Commissioner.*

[976 O.G. 128]

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(93) Microorganisms—Patentable Subject Matter

The decision of the Supreme Court in *Diamond* v. *Chakrabarty* (206 U.S.P.Q. 193) held that microorganisms produced by genetic engineering are not excluded from patent protection by 35 U.S.C. §101. It is clear from the Supreme Court decision that the question of whether or not an invention embraces living matter is irrelevant to the issue of patentability.

Accordingly, the Patent and Trademark Office is now examining patent applications including claims to microorganisms which had been under suspension. Assuming that the products involved were the result of human intervention and were not products of nature, such claims will not be rejected under 35 U.S.C. §101 as directed to unpatentable subject matter.

SIDNEY A. DIAMOND,
July 29, 1980. *Commissioner of Patents and Trademarks.*

[997 O.G. 24]

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(94) Department of Commerce
Patent and Trademark Office

Designation of International Depository Authorities under the Budapest Treaty

The Budapest Treaty and the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure came into force on Aug. 19, 1980 with respect to the United States, Bulgaria, France, Hungary, and Japan. A copy of the Treaty was published in the *Official Gazette* on Aug. 23, 1977 (961 O.G. 21–26).

This Treaty authorizes each State for which the Treaty is in effect to designate a depository on its territory to serve as an international depository authority. More than one depository may be designated. Each such depository will be authorized to receive and store deposits, and dispense samples thereof, in compliance with the Treaty and the patent laws of each State adhering thereto. The Treaty is open for adherence by any member State of the Paris Union for the Protection of Industrial Property.

The Commissioner of Patents and Trademarks hereby solicits requests from private and public depositories located in the United States to serve as international depository authorities. Requests should be addressed to: Sidney A. Diamond, Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Each request must explain and, to the extent practicable, provide evidence of the depository's capacity to meet the obligations of the Treaty. Such request must also include an offer by the depository to assume the cost of transferring deposits made under the Treaty to another international depository authority in the event of default of any of its Treaty obligations. The availability of funds for such transfer, if needed, must be available through a bond, special reserve fund, escrow or other means judged suitable by the Commissioner.

Requests will be promptly evaluated by the Commissioner of Patents and Trademarks, and each requesting depository promptly notified of the decision reached. Questions or inquiries concerning this notice may be addressed to the Office of Legislation and International Affairs, at the following address: Box 4, Commissioner of Patents and Trademarks, Washington, D.C. 20231. The telephone number of the Office of Legislation and International Affairs is (703) 557-3065.

The World Intellectual Property Organization, in Geneva, Switzerland, the Secretariat for the Paris Union, has provided a memorandum explaining the role and obligations of international depository authorities. This memorandum is reproduced below for the guidance of depositories in requesting recognition as an international depository authority.

MEMORANDUM

For the purposes of prospective international depositary authorities under the Budapest Treaty

Introduction

1. This memorandum contains informations for the benefit of any depositary institutions (culture collections) that may wish to become "international depositary authorities" under the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure (done at Budapest on Apr. 28, 1977). Its brevity is such that it cannot be exhaustive. Any interested person requiring full information should refer to the relevant provisions of the Budapest Treaty and the Regulations under it (any reference hereinafter to an "Article" or to a "Rule" is a reference to an Article of the Budapest Treaty or to a Rule of the Regulations under it).

Objectives of the Budapest Treaty

2. Disclosure of the invention is a generally recognized requirement for the grant of patents (for the purposes of this memorandum, the word "patent" also covers other titles of protection, such as inventors' certificates). Normally, an invention is disclosed by means of a written description. Where an invention involves the use of a microorganism that is not available to the public, such a description is not sufficient for disclosure, since the invention could not be used by a person skilled in the art. That is why in the patent procedure of an increasing number of countries it is necessary not only to file a written description but also to deposit, with a depositary institution, a sample of the microorganism. When protection for the invention is sought in several countries, the complex and costly procedures of the deposit of the microorganism might have to be repeated in each of those countries. The objective of the Budapest Treaty is precisely to obviate such multiple deposits: under the Treaty a single deposit with one "international depositary authority" is sufficient for the purposes of patent procedure before the industrial property offices of all Contracting States, and of inter-governmental organizations granting regional patents which have declared that they recognize the effects of the Treaty (Articles 3(1)(a) and 9(1)(a)).

General Remarks on International Depositary Authorities

3. "International depositary authorities" are depositary institutions that have acquired the status of international depositary authorities. To obtain this status, a depositary institution has to be located on the territory of a Contracting State or of a member State of one of the organizations referred to in the preceding paragraph, and has to benefit from "assurances" furnished by that Contracting State or organization to the effect that the institution complies and will continue to comply with the requirements referred to in paragraph 5 below (Article 6(1)). The action for acquiring this status is taken by the State or organization concerned (Article 7 and Rule 3). There is nothing to prevent it from making more than one depositary institution acquire such status: it is therefore possible for there to be several international depositary authorities located on the territory of one and the same State.

4. An international depositary authority can lose its status either entirely (in which case "termination of status" is spoken of) or partly, in other words in respect of certain types of microorganisms only (in which case "limitation of status" is spoken of). Loss of the status occurs if the State or organization whose action brought about the acquisition of the status denounces the Treaty or withdraws the declaration of recognition of the effects of the Treaty (in which case the loss of status can

only be total), or if the State or organization withdraws its assurances regarding the international depositary authority, or again by virtue of a decision of the Assembly of Contracting States taken at the request of another Contracting State or another organization (Articles 8, 9(4) and 17(4); Rule 4).

Requirements Which Have to be Met by International Depositary Authorities

5. The requirements referred to in paragraph 3 above which a depositary institution has to meet in order to become a depositary authority are the following (Article 6(2) and Rule 2):

(a) The institution has to have a continuous existence. It has to be impartial and objective—which means among other things that it has to be free of any dependence on interests that are liable to prejudice the disinterested performance of its functions—and it has to be available, for the deposit of microorganisms, to any depositor under the same conditions. These requirements, which in fact seem self-evident, are designed to give the public in general and depositors in particular fundamental guarantees of reliability as to the smooth operation of the system. On the other hand, the legal status of the institution is irrelevant: it may be either public or private.

(b) The institution has to have the necessary staff and facilities to perform its scientific and administrative tasks, which consist among other things in:

(i) accepting for deposit any or certain kinds of microorganisms;

(ii) examining the viability of the microorganisms deposited with it and issuing a receipt to the depositor and any required viability statement (see paragraphs 7 and 8 below);

(iii) storing the deposited microorganism for at least 30 years (Rule 9(1)) in such a way as to keep them viable and uncontaminated;

(iv) providing for sufficient safety measures to minimize the risk of losing the deposited microorganisms,

(v) complying with respect to the microorganisms deposited under the Treaty with the requirement of secrecy which means giving no information to anyone on the question whether a microorganism has been thus deposited and giving no information to anyone (except to a person who is entitled to a sample—see paragraph 10 below) on any microorganism thus deposited (Rule 9(2));

(vi) furnishing, rapidly and in an appropriate manner, samples of the deposited microorganisms to all those who are entitled to such samples (see paragraph 10 below).

Handling of Microorganism Deposits by the International Depositary Authority

6. *Reception of the microorganism.* The international depositary authority may require that the microorganism be deposited in an appropriate form and quantity, and that it be accompanied by a form established by that authority. In such a case, the said authority has to communicate its requirements (and any amendments to them) to the International Bureau in order that the latter may communicate them to all the depositors concerned (Rules 6.3 and 13.2(b)(v)). When it receives the microorganism, the international depository authority notes the date of receipt of the deposit and gives it an accession number (Rule 7.3(iii) and (v)). It issues a receipt to the depositor attesting the receipt and acceptance of the deposit (Rule 7). The model of the international form for the receipt, the use of which will be mandatory, will be established by the Director General of WIPO and communicated to all international depositary authorities.

7. *Viability test.* The international depositary authority promptly tests the viability of the microorganism; it also undertakes viability tests at reasonable intervals, depending on the kind of microorganism and its possible storage conditions, or at any time, if necessary for technical reasons or at the request of the depositor (Rule 10.1)

8. *Viability statement.* The international depositary authority issues a statement concerning the viability of the microorganism to the depositor or to any person receiving a sample of the microorganism (see paragraph 10 below) (Rule 10.2). The model of the international form for the viability statement, the use of which is mandatory, will be established by the Director General of WIPO and communicated to all international depositary authorities.

9. *Storage of the microorganism.* The international depositary authority stores the microorganism for a period of at least 30 years after the date of its deposit, or until five years have elapsed without its having received a request for a sample, the period expiring later being applicable (Rule 9.1). It complies with the requirement of secrecy at all times (see paragraph 5(v) above). Where it cannot furnish samples of the deposited microorganism for any reason, it notifies the depositor of the fact, indicating the reason and informing him that he is entitled to make a new deposit (Article 4).

10. *Furnishing of samples.* The Regulations contain detailed provisions specifying who is entitled to receive samples of the microorganism, and when (Rule 11). The depositor himself is entitled to receive a sample at any time. He may authorize third parties to have samples furnished to them, whereupon the third parties receive a sample on presentation of their authorizations. Any industrial property office to which the Treaty applies may receive a sample on request if it needs the microorganism for the purposes of a patent procedure. Any other person may obtain a sample on request if an industrial property office to which the Treaty applies certifies that, under the applicable law, that person has a right to a sample of the microorganism concerned; the Regulations specify in detail the certification procedure. The use of a form (whose contents will be established by the Assembly and communicated by the International Bureau to all international depositary authorities) is mandatory for the request and certification. There is an alternative procedure wherey the industrial property office from time to time communicates to international depositary authorities lists of the accession numbers given to the deposit of the microorganisms referred to in the patents granted and published by it; the effect of this communication is to authorize those authorities to furnish samples of the microorganisms to anyone. It should be stressed that it follows from the foregoing that the international depositary never has to decide itself whether it has the right to furnish a sample since it only does so if it has the authorization of the depositor or of an industrial property office. The international depositary authority furnishes the sample in a container marked with the accession number given to the deposit and accompanied by a copy of the receipt for the deposit. It notifies the depositor of the furnishing of the sample.

11. *Communication of the scientific description and/or proposed taxonomic designation.* If the depositor has indicated a scientific description and/or proposed a taxonomic designation of the deposited microorganism, the international depositary authority must communicate it, on request, to any person entitled to receive a sample of the said microorganism (Rule 7.6).

12. *Fees.* For the procedure under the Treaty and the Regulations, the international depositary authority has the right to charge a fee in certain cases (specified in Rule 12.1). The two main fees are the fee for the storage of the microorganism (which is a single fee for the entire period of storage) and the fee for the furnishing of a sample (the furnishing of samples to industrial property offices is free of charge, however). The international depositary authority fixes the amounts of fees at its discretion, but they must not vary on account of the nationality or residence of the persons who have to pay them.

SIDNEY A. DIAMOND,
July 14, 1978. *Commissioner of Patents and Trademarks.*

[999 O.G. 2]

(95) **Entry Into Force of the Budapest Treaty**

The Patent and Trademark Office announces the entry into force on Aug. 19, 1980 of the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure with respect to the United States, Hungary, Bulgaria, France and Japan. A copy of the Treaty was published in the Official Gazette on Aug. 23, 1977 (961 O.G. 21–36).

Following entry into force of the Treaty, each state adhering or acceding thereto will be authorized to nominate depositories on its territory to serve as international depository authorities. Upon compliance with certain procedural steps set forth in the Treaty, each such depository will be designated an international depository authority.

No depository in the United States or elsewhere has yet been nominated or designated to serve as an international depository authority. It is expected, however, that some depositories will shortly be designated both in the United States and other States adhering to the Treaty. Public notice will be provided of the designation of each international depository authority and its requirements for patent deposits.

An application for a patent in any adhering States involving the action of a microorganism, for which a deposit is required, may make the required deposit in any international depository authority. The fact and date of making the deposit will be recognized for all patent purposes in each State adhering to the Treaty. No further deposit will be required for national patent processing or enforcement, provided a deposit is properly made under the provisions of the Treaty.

An application for a United States patent will not be required to proceed under the provisions of the Budapest Treaty, however. Such an applicant may rely instead on a deposit made in any depository meeting the requirements set forth in *In re Argoudelis, et al.*, 168 USPQ 99 (CCPA, 1970) and reprinted in section 608.01(p), Manual of Patent Examining Procedure.

Questions or information regarding the Budapest Treaty may be directed to the Office of Legislation and International Affairs, at the following address: Box 4, Commissioner of Patents and Trademarks, Washington, D.C. 20231. The telephone number of the Office of Legislation and International Affairs is (703) 557-3065.

SIDNEY A. DIAMOND,
July 14, 1980. *Commissioner of Patents and Trademarks.*

JORDAN J. BARUCH,
July 16, 1980. *Assistant Secretary for Productivity, Technology and Innovation.*

[997 O.G. 10]

DEPARTMENT OF COMMERCE

(96) **Patent and Trademark Office**
Recognition of United States Depository as an International Depository Authority Under the Budapest Treaty

As provided in Article 7 of the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure, the United States announces recognition of the American Type Culture Collection, Rockville, Md., as an international depository authority. The communication of the Director General of the World Intellectual Property Organization according this recognition as of Jan. 31, 1981 follows:

SIDNEY A. DIAMOND,
Dec. 30, 1980. *Commissioner of Patents and Trademarks.*

BUDAPEST Notification No. 11

BUDAPEST TREATY ON THE INTERNATIONAL RECOGNITION OF THE DEPOSIT OF MICROORGANISMS FOR THE PURPOSES OF PATENT PROCEDURE

Communication of the United States of America Relating to the Acquisition of the Status of International Depositary Authority by the American Type Culture Collection

The Director General of the World Intellectual Property Organization (WIPO) presents his compliments to the Minister for Foreign Affairs and has the honor to notify him of the receipt, on Nov. 17, 1980, of a written communication from the Government of the United States of America, relating to the American Type Culture Collection, indicating that the said depositary institution is located on the territory of the United States of America and including a declaration of assurances to the effect that the said institution complies and will continue to comply with the requirements concerning the acquisition of the status of international depositary authority as specified in Article 6(2) of the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure, done at Budapest on Apr. 28, 1977.

The American Type Culture Collection will acquire the status of international depositary authority under the said Treaty as from Jan. 31, 1981, the date of publication of the said communication in the Jan. 1981 issue of *Industrial Property/La Propriete industrielle* (see Article 7(2) of the said Treaty).

Dec. 3, 1980.

[1002 O.G. 116]

DEPARTMENT OF COMMERCE

(97) **Patent and Trademark Office**
Recognition of United States Depository as an International Depository Authority Under the Budapest Treaty

As provided in Article 7 of the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure, the United States announces recognition of the Agricultural Research Culture Collection, Peoria, Ill., as an international depository authority. The communication of the Director General of the World Intellectual Property Organization according this recognition as of Jan. 31, 1981 follows:

SIDNEY A. DIAMOND,
Dec. 30, 1980. *Commissioner of Patents and Tradmarks.*

BUDAPEST Notification No. 12

BUDAPEST TREATY ON THE INTERNATIONAL RECOGNITION OF THE DEPOSIT OF MICROORGANISMS FOR THE PURPOSES OF PATENT PROCEDURE

Communication of the United States of America Relating to the Acquisition of the Status of International Depositary Authority by the Agricultural Research Culture Collection

The Director General of the World Intellectual Property Organization (WIPO) presents his compliments to the Minister for Foreign Affairs and has the honor to notify him of the receipt, on Dec. 2, 1980, of a written communication from the Government of the United States of America, relating to the Agricultural Research Culture Collection, indicating that the said depositary institution is located on the territory of the United States of America and including a declaration of assurances to the effect that the said institution complies and will continue to comply with the requirements concerning the

acquisition of the status of international depositary authority as specified in Article 6(2) of the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure, done at Budapest on Apr. 28, 1977.

The Agricultural Research Culture Collection will acquire the status of international depositary authority under the said Treaty as from Jan. 31, 1981, the date of publication of the said communication in the Jan. 1981 issue of *Industrial Property/La Propriete industrielle* (see Article 7(2) of the said Treaty).

Dec. 8, 1980.

[1002 O.G. 116]

DEPARTMENT OF COMMERCE

(98) **Patent and Trademark Office**

37 CFR Part 1

[Docket No. 21001–201]

File Wrapper Continuing Application Procedure

Agency: Patent and Trademark Office, Commerce.

Action: Final rule.

Summary: The Patent and Trademark Office is amending the rules of practice in patent cases to provide a new procedure for filing continuation, continuation-in-part, and divisional patent applications. This procedure is being provided to simplify filing and processing of continuation, continuation-in-part and divisional patent applications which have heretofore required a new set of application papers. By using the application which is to be abandoned, the procedure will eliminate many of the problems currently involved in preparing and processsing such continuing patent application papers.

Effective Date: Feb. 27, 1983.

For Further Information Contact: Mr. Louis O. Maassel by telephone at (703) 557-3070, or by mail marked to his attention and addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Supplementary Information: The Patent and Trademark Office is amending the rules of practice for patent cases to permit an applicant to file a continuation or division of a pending patent application by simply filing a request therefor and paying the necessary application filing fee. To file a continuation-in-part application, an amendment adding the additional subject matter and an oath or declaration relating thereto is also required.

The "file wrapper continuing" (FWC) procedure is incorporated in the rules by adding a new §1.62. Under this simplified procedure, any continuing application such as a continuation, continuation-in-part, or divisional application may be filed by using the papers in the copending prior application, which application will become automatically expressly abandoned. Under the FWC procedure, a new serial number is assigned and the specification, drawings and other papers in the parent application file wrapper are used as the papers in the continuing application. Changes in inventorship may be made. The "file wrapper continuing" (FWC) procedure is available for utility, design, plant, and reissue applications to the full extent that continuing applications can now be filed in such applications. Use of the FWC procedure will automatically result in express abandonment of the prior application as of the date that the continuation, continuation-in-part, or divisional application is filed.

The FWC procedure could be used for any continuation, continuation-in-part or divisional application provided the applicant wishes the copending prior application to become abandoned. If a divisional application is desired without abandonment of the parent application, the procedure under §1.60 should be used. Applicant also has the option of filing new application papers with a reexecuted oath or declaration.

Background

The notice of proposed rulemaking was published in the Federal Register on Nov. 7, 1980 at 45 FR 73965 and in the Official Gazette on Dec. 9, 1980 at 1003 O.G. 9. An oral hearing was held on Feb. 4, 1981.

Discussion of Major Issue Involved

A continuation or divisional application is an application in which the disclosure is identical to an earlier application. However, the claims may be changed. Continuation applications are often filed in situations where the applicant feels that the issue of patentability has not been satisfactorily resolved before the examiner and the application is not in condition for an appeal from the final rejection to the Board of Appeals. Divisional applications are filed voluntarily or as a result of a requirement for restriction by the examiner in a prior application. Continuation-in-part applications are filed where additional subject matter is added and claimed in the application. Under 35 U.S.C. 120 of the patent law, a continuation, continuation-in-part or divisional application may be filed during the pendency of the prior application and the benefit of the filing date of the prior application for the subject matter disclosed therein may be obtained.

The practice under §1.60 has resulted in a number of problems, especially difficulties in obtaining good-quality copies of prior applications. In addition, the practice involves unnecessary handling and processing delays.

Under new §1.62, the specification, claims and drawings, and any amendments in the prior application are made available for use in the continuation, continuation-in-part, or divisional application. A new filing fee is required in accordance with 35 U.S.C. 41 and 37 CFR 1.16. The only other statutory requirement under 35 U.S.C. 111 is a signed oath or declaration. Since a continuation or divisional application cannot contain new matter, the oath or declaration filed in the prior application would supply all the information required under the statute and rules to have a complete application and to obtain a filing date. Accordingly, the previously-filed oath or declaration will be considered to be the oath or declaration of the §1.62 continuation or division. However, if a continuation-in-part application is being filed, or a correction of inventorship is being made, then a new oath or declaration must be signed and filed by the applicant.

The original disclosure of an application filed under §1.62 will be the original parent application as executed by the inventor(s). However, the filing fee will be based on the claims in the §1.62 application after entry of any unentered amendments under §1.116 in the prior application and any preliminary amendment which may accompany the FWC request and filing fee. The Certificate of Mailing Procedure under 37 CFR 1.8 will not apply to filing a request for a "File Wrapper Continuing" application since the filing of such a request is considered to be a filing of application papers for the purpose of obtaining an application filing date (37 CFR 1.8(a)(i)).

The applicant may file a signed FWC request and the regular filing fee under §1.16 and other necessary papers with the Patent and Trademark Office, either by mail addressed to "Box FWC" or in person with the mail room. An individual check or deposit account authorization should accompany each FWC application, since combined checks delay processing.

The Correspondence and Mail Division will sort out all "Box FWC" envelopes upon receipt and deliver them to a reader for prompt special handling. The reader would apply the "Mail Room" date stamp and mark the categories of the fees. The papers for each FWC application would be assigned a regular national serial number and be placed in a "Jumbo" size file wrapper. The Special Handling Branch will review the FWC request for accuracy and completeness and assign the filing date if everything appears to be in order. Problems will be handled, insofar as possible, by calling the applicant or attorney by telephone. There will be no need for any processing of the FWC application by the Classifi-

cation or Examination Branches of Application Division since there are no papers to be examined and the FWC application will be routed to the group assigned the prior application. When the FWC application file wrapper is received in the examining group, the parent application will be promptly obtained and processed by a clerical staff member.

All of the correspondence from the Office in a FWC application will refer to the FWC application serial number and filing date and will be processed in the same manner as any other continuation, continuation-in-part or divisional application. The first action final rejection procedures set forth in §706.07(b) of the Manual of Patent Examining Procedure will also apply to FWC applications filed under §1.62.

The PALM III system will supply information to authorized persons as to the location of the parent application file wrapper and will tie the parent application number to the FWC application number.

The provisions of §1.62 provide that if any application in the file wrapper is available to the public that all applications in the file wrapper will be available to the public.

Some of the anticipated benefits of the new §1.62 procedure are the following:

For the Applicant

1. Formal requirements will be minimal.

2. A more prompt first action in the continuing application should be received in view of reduced processing time. The Application Division can process promptly all §1.62 applications with minimal effort. In the examining groups, the applications will be given high priority for processing purposes.

3. Amendments made to the specification, drawings and claims of the prior application will carry over into the §1.62 continuing application and will not need to be resubmitted in the continuing application.

For the Public

1. The pendency of a series of applications should be reduced since the time delay before examination and issuance of a continuing application filed under the §1.62 procedure would be reduced.

2. The entire record of prosecution could be in one file wrapper under the §1.62 procedure, even if several continuing applications are filed. This will result in easier access by the public to a series of applications if a patent is later issued.

For the Patent and Trademark Office

1. The workload of reviewing and processing new application papers in the Application Division will be reduced.

2. The examining group clerks will not be required to again enter amendments made in the prior application.

3. Less storage space will be required under §1.62 since there will be fewer papers to store.

4. The prior application file history and references cited therein will be readily available to the examiner under§1.62 and will not need to be ordered from abandoned files.

5. The Office will not be required to prepare a copy of the prior application file under the §1.62 procedure.

Discussion of Comments Received

After careful consideration of the comments which have been received, the proposed rulemaking relating to file wrapper continuing application procedure is being adopted with certain changes. A total of 23 comment letters were received. Six of these letters were received from patent law organizations. Two persons presented oral comments at the hearing. The comments of 6 letters supported the proposed rulemaking without further suggestions for change. Only one letter opposed the proposal.

Seven of the letters urged adoption of a procedure whereby an applicant could pay a fee to have a final rejection withdrawn so that prosecution could be extended in an application rather than filing a continuing application. This suggestion was not adopted for several reasons. Such a procedure could not be used for filing of continuation-in-part applications, the average pendency of applications in the Office would be extended, and significant problems in internal record systems would be created.

A number of comments were received which presented specific suggestions to proposed §1.62. Four letters commented that the requirement of proposed §1.62(a)(4) to supply information as to title, applicant, correspondence address, etc. in order to file under §1.62 could easily lead to filing errors.

In final §1.62(a)(3) only the serial number, filing date and applicant's name of the prior application are required. The filing of information relating to the title, applicant's name, etc. is however urged in paragraph (e) of final §1.62 and is needed to prepare Office records and the filing receipt.

One comment letter was received which indicated that a specific reference should be made to unentered amendments filed under 37 CFR 1.116. Such a reference has been added to paragraph (a)(2) of §1.62.

Two letters objected to the requirement in proposed §1.62(a)(2) that a new set of claims be presented. This requirement has been deleted from final §1.62.

A number of general comments were also presented relating to §1.62. One comment argued that the proposed practice would encourage abuse by examiners of the second action final rejection practice. In response to this argument, it is felt that the proposed procedure would not create any new problems.

One comment indicated that problems involving access to the file wrapper may arise. It is felt, however, that access problems should not arise in view of paragraph (c) of final §1.62 which relates to waiver of secrecy. The current PALM III computer record system is capable of indicating the location of both the prior and continuing applications.

One comment was received relating to proposed §1.138 which indicated that the reference to §1.60 was confusing. The reference to §1.60 has been deleted in final§1.138.

New §1.62 sets forth the requirements of the file wrapper continuing procedure.

Section §1.138 is amended so that a registered attorney or agent could, without being of record, file a §1.62 application and expressly abandon a pending prior application. Such an action would not affect applicant's rights to any great extent since the prior application would only be expressly abandoned if a filing date was granted to a continuing application.

Other Considerations

Environmental, Energy, and Other Considerations: The rule change will not have a significant impact on the quality of the human environment or the conservation of energy resources.

This rule change is in conformity with the requirements of the Regulatory Flexibility Act (Pub. L. 96–354), Executive Order 12291, and the Paperwork Reduction Act of 1980(44 U.S.C. 3501 et seq.).

The rule change will not have a significant adverse economic impact on a substantial number of small entities because it adds no burdens and does simplify filing procedures (Regulatory Flexibility Act, Pub. L. 96–354).

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291. The annual effect on the economy will be less than $100 million. There will be no major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. There will be no significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

This rule change will not impose a burden under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 et seq., since no significant additional record keeping or reporting requirements are placed upon the public. In fact,

some paperwork, especially that related to preparing application papers and amendments, will be reduced.

List of Subjects in 37 CFR Part 1

Administrative practice and procedure, Inventions and patents, Lawyers.

(Text of adopted rules appears in 37 CFR, revised July 1, 1983.)

Sept. 30, 1982. GERALD J. MOSSINGHOFF, *Commissioner of Patents and Trademarks.*

[FR Doc. 82-29283 Filed 10-23-82; 8:45 am]

BILLING CODE 3510-16-M

[1024 O.G. 59]

DEPARTMENT OF COMMERCE

(99) **Patent and Trademark Office**

37 CFR Part 1

Reissue, Reexamination, Protest and Examination Procedures in Patent Cases

Agency: Patent and Trademark Office, Commerce.

Action: Final rule.

Summary: The Patent and Trademark Office is amending the rules of practice in patent cases (1) to eliminate consideration of the so-called "no defect" reissue applications, (2) to limit the participation by protestors during the examination of patent applications, (3) to reject and permit appeal to the Board of Appeals for failure to comply with the duty of disclosure rather than striking applications without appeal rights, and (4) to clarify the interface between patent application examination and patent reexamination in certain areas. These changes are intended to (1) reduce the prosecution costs of patent applicants, and (2) permit some of the Patent and Trademark Office resources now devoted to consideration of the so-called "no defect" reissue applications, and to extensive participation by protestors during application examination, to be directed toward reduction of the backlog of pending patent applications. The changes are also intended to provide for review by the Board of Appeals of duty of disclosure issues which arise during patent application examination. The rule changes are further intended to clarify the interface between the duty of disclosure during patent application examination and the duty of disclosure during patent reexamination, as well as the treatment of concurrent reissue and reexamination proceedings on the same patent.

Effective Date: July 1, 1982.

For Further Information Contact: Mr. R. Franklin Burnett by telephone at (703) 557-3054 or by mail marked to his attention and addressed to the Commissioner of Patents and Trademarks. Washington, D.C. 20231.

Supplementary Information:

Background

A notice of proposed rulemaking was published in the Federal Register on Nov. 10, 1981, at 46 FR 55666-55672 and in the Official Gazette on Dec. 8, 1981, at 1013 O.G. 19-25. An oral hearing was held on Feb. 4, 1982. Forty-two written letters and statements were submitted. Fourteen persons testified at the oral hearing which resulted in 113 pages of testimony. Consideration was also given to the comments presented at the oral hearing on Apr. 16, 1981, relating to the proposed rules for implementing patent reexamination.

Objectives of Rule Change

The rule change is designed to adopt and implement suggestions from members of the public for changes in patent examination practice considered desirable in light of the implementation of statutory patent reexamination, contained in Public Law 96-517. Many of the persons who commented in writing and at the hearing held on Apr. 16, 1981, on the proposed rules for implementing patent reexamination favored modification of patent examination rules as amended herein. This rule change is designed to implement the suggestions received and, in particular, to reduce the prosecution costs of patent applicants by limiting the amount of participation by protestors during the patent application examination process.

The rule change also seeks to reduce the amount of time required by the Patent and Trademark Office to examine protested applications by limiting protestor participation. The technical expertise of the Patent and Trademark Office will continue to be available to make determinations of patentability on the basis of prior art and related facts on an ex parte basis. However, the patent examiners in the Office are not trained as hearing examiners and have no substantial experience in handling inter partes matters. Under the rule change, protestor participation will be limited to the filing of papers in opposition to the grant of a patent with no Office communications to the protestor resulting therefrom beyond an acknowledgment of receipt of a protest or petition to strike in reissue applications. The opportunity to comment on Office actions and applicants' responses is eliminated. The rule change also intends to accomplish these purposes by eliminating the consideration of reissue applications not initially presented to correct defects pursuant to 35 U.S.C. 251.

The rule change is also designed to provide for review by the Board of Appeals of duty of disclosure issues which arise during patent application examination. This is accomplished by amending §1.56(d) to provide that the claims in an application be rejected if upon examination pursuant to 35 U.S.C. 131 and 132 it is found that applicant is not "entitled to a patent under the law" because of fraud or a violation of the duty of disclosure. The rejection would be made under the same conditions and circumstances previously used to strike an application, i.e., "clear and convincing evidence" of fraud or any violation of the duty of disclosure through bad faith or gross negligence. The statute, 35 U.S.C. 131, provides for examination of an application "and if on such examination it appears that the applicant is entitled to a patent under the law, the Commissioner shall issue a patent * * *" Section 132 of Title 35, United States Code, makes provision for the rejection of a claim for a patent as a result of the examination directed by 35 U.S.C. 131. While questions of fraud and violations of the duty of disclosure have historically been dealt with by the Commissioner through the mechanism of striking the affected application, there is no statutory requirement that the Commissioner act in that manner. Clearly the Commissioner can choose how, and by whom, the examination directed by 35 U.S.C. 131 can be made. 35 U.S.C. 132 authorizes a rejection in those circumstances where applicant is not "entitled to a patent under the law." The rule change simply modifies the mechanism and procedures which the Commissioner will use where the applicant is not "entitled to a patent under the law" because of failures to comply with §1.56(d).

The rule change is also designed to clarify the interface between patent application examination and patent reexamination in certain areas. The two areas involved are duty of disclosure and concurrent proceedings involving a patent under reexamination and for which a reissue application has been filed.

Sections 1.56, 1.106, 1.175, 1.193, 1.291, 1.555, 1.565, and 1.570 are amended to accomplish the purpose indicated above.

Discussion of Specific Rules

Access and Publication of Reissue Applications

The changes proposed in §1.11 are not being adopted since only one of the twenty-two comments favored the changes.

The publication of notices of the filing of reissues and provisions for public access to reissues will therefore continue as at present. Such publication eliminates the need for interested members of the public to periodically

monitor the patent files to determine if a reissue application has been filed.

Amendments to §1.56

A large majority of the comments supported the amendments to §1.56. A number of comments questioned the advisability of having relatively inexperienced or non-attorney examiners handle questions of fraud or violation of the duty of disclosure. In response thereto, the amendments to the rule do not require that such questions be handled by the examiner who examines the application for questions of obviousness, enablement, etc. The Office presently plans to have questions of possible fraud or violation of the duty of disclosure examined by examiners with legal training assigned to the Office of the Assistant Commissioner for Patents. Several comments suggested that the provisions for striking an application pursuant to existing paragraph (c) of §1.56 are inconsistent with the rejection for fraud or violation of the duty of disclosure contemplated in the amendment to paragraph (d). In response thereto, it is pointed out that paragraph (c) of §1.56 makes striking of the application discretionary with the Commissioner. It is thus more appropriate to retain this authority to strike the application in appropriate circumstances rather than to make it subject to a rejection. No inconsistency is seen between the different routes under paragraphs (c) and (d) of §1.56. Several comments were received indicating concern about the possible delay of a decision by the Board of Appeals pending consideration of a fraud or duty of disclosure question. In response to these concerns, it is pointed out that less time overall will be required by having the Board of Appeals consider the matter once rather than in a series of separate decisions. Further, expense to the applicant will be minimized by one appeal rather than two. The amendments to §1.56 are adopted as proposed except for some clarifying changes in paragraph (g).

Section 1.56 is amended by revising the title and paragraph (d), and by adding new paragraphs (e) through (i). The revision to the title and paragraph (d) provides for the rejection of claims upon examination pursuant to 35 U.S.C. 131 and 132 on the ground that applicant is not entitled to a patent under the law if it is established by clear and convincing evidence (1) that any fraud was practiced or attempted on the Office in connection with the application, or in connection with any previous application upon which the application relies, or (2) that there was any violation of the duty of disclosure through bad faith or gross negligence in connection with the application, or in connection with any previous application upon which the application relies. Under amended paragraph (d), any rejection which would be made would include all the claims in the application.

The standards to be used in rejecting the claims under paragraph (d) as amended, would be the same as those utilized by the Commissioner in striking applications pursuant to present paragraph (d), i.e., clear and convincing evidence of fraud or any violation of the duty of disclosure through bad faith or gross negligence. Consistent with present practice, the revision of paragraph (d) looks to fraud or a violation of the duty of disclosure through bad faith or gross negligence with relation to the application under consideration or any previous application upon which the application relies.

The phrase "in connection with the application" is construed in the same manner as in the present unamended paragraph (d). For purposes of this section, a reexamination proceeding on a patent would be considered as being "in connection with the application" insofar as consideration of any subsequent reissue application is concerned. The phrase also includes within its scope the mere refiling of the subject matter of an application in another application without relying in the second application upon the first application. Thus, an appropriate rejection upon examination pursuant to 35 U.S.C. 131 and 132 based on conduct or actions proscribed by §1.56(d) could not be avoided merely by refiling the subject matter of the application in a second or subsequent application which did not rely upon the earlier application. The phrase "in connection with any previous application upon which the application relies" is intended to include all applications upon which the application under consideration relies, either directly or indirectly. For example, an application to reissue a patent obviously relies upon the application which resulted in the patent sought to be reissued. Likewise, continuation applications, continuation-in-part applications, and divisional applications also rely upon one or more parent applications.

New paragraph (e) of §1.56 normally delays the examination of an application for compliance with paragraph (d) of §1.56 until such time as (1) all other matters are resolved, or (2) appellant's reply brief pursuant to §1.193(b) has been received and the application is otherwise ready for consideration by the Board of Appeals, at which time the appeal will be suspended for examination pursuant to paragraph (d) of this section. Present plans are to have this examination on the question of fraud or violation of the duty of disclosure conducted by examiners with legal training assigned to the Office of the Assistant Commissioner for Patents. Paragraph (e), as added, would thus permit the resolution of issues arising under §1.56(d) to be delayed until consideration of such issues is necessary and appropriate. The practice under new paragraph (e) is generally consistent with present practice under paragraph (d) which normally delays the substantive resolution of fraud and duty of disclosure issues until other issues have been resolved in favor of applicant. Under new paragraph (e) an appeal would be suspended for examination pursuant to amended paragraph (d) of §1.56 once appellant's reply brief pursuant to §1.193(b) has been received and the application is otherwise ready for consideration by the Board of Appeals. If no questions of possible violation of §1.56 are raised or evident on the record before the examiner, no examination for compliance with paragraph (d) of §1.56 will be undertaken. New paragraph (e) provides for the reopening of prosecution of the application to the extent necessary to conduct the examination pursuant to amended paragraph (d) of §1.56 including any appeal pursuant to §1.191. New paragraph (e) also indicates that where an appeal has already been filed based on a rejection on other grounds, any further rejection under amended paragraph (d) will be treated in accordance with amended §1.193(c).

New paragraph (f) continues the present long standing practice whereby any member of the public can file a petition to strike an application from the files pursuant to paragraph (c) of §1.56. Such petitions are currently being filed without specific mention in §1.56. Under revised§1.56 petitions to strike an application for a violation of §1.56 are limited to violations of paragraph (c), with any violations of paragraph (d) being subject matter for rejection under paragraph (d). New paragraph (f) requires that any such petition alleging a violation of paragraph (c) which is entered in the application file must: (1) Be timely filed, (2) specifically identify the application to which the petition is directed, and (3) be served on the applicant or be filed with the Office in duplicate in the event service is not possible. New paragraph (f) does not specifically limit a "timely petition" to any particular point in the examination of the application. Such petitions will generally be considered "timely" if they are filed before final rejection or allowance of the application by the examiner. Whether or not a petition filed after final rejection or allowance of the application by the examiner is considered "timely" will depend upon the circumstances and the point in the prosecution at which the petition is submitted.

New paragraph (f) requires that the petition specifically identify the application to which the petition is directed. While an identification by application serial number is not essential, the identification must include enough specificity that the Office can determine with certainty the application to which the petition is directed. Paragraph (f) requires service of the petition on the appli-

cant, or a duplicate copy in the event service is not possible, before the petition will be entered. While the Office might, in some circumstances, reproduce and serve a petition on the applicant, a member of the public would have no assurance that this would be done and, under paragraph (f), could not rely upon the Office doing so. Paragraph (f) also requires that any petition filed by an attorney or agent comply with §1.346.

New paragraph (g) of §1.56 assures a member of the public that a petition to strike an application for violation of paragraph (c) of §1.56 which meets the requirements of paragraph (f) will be considered by the Office. Language has been added to conform to additional language in §1.291(c). The Office will send petitioner an acknowledgment of the entry of a petition to strike in a reissue application file. However, the Office will not communicate with the member of the public filing such a petition in non-reissue applications, except for the return of any self-addressed postcard which was enclosed which merely acknowledges receipt of the petition. The member of the public filing the petition will not be permitted to contact the Office as to the disposition, or status, of the petition, or to participate in any Office proceedings relating to the petition. No further papers will be acknowledged or considered unless they raise new issues which could not have been earlier presented and thereby constitute a new proper petition. Mere arguments relating to the Office's decision on the petition or applicant's response to the petition would not qualify as a new proper petition. The disposition of the petition, once one has been filed, will, under paragraph (g), be an ex parte matter between the Office and the applicant. Paragraph (g) provides for communication by the Office with the applicant regarding a petition to strike the application which has been entered in the application file. Under new paragraph (g) the applicant could be required by the Office to respond to the petition. Any such response would be ex parte and would not be served on the member of the public filing the petition.

New paragraph (h) of §1.56 provides that any member of the public may seek to have the claims in an application rejected pursuant to the amended paragraph (d) of §1.56 by filing a timely protest in accordance with §1.291. New paragraph (h) also requires that any such protest filed by an attorney or agent seeking a rejection of claims pursuant to amended paragraph (d) of §1.56 must be in compliance with §1.346. One comment suggested that the last sentence of paragraph (h) is redundant since §1.346 applies without any specific mention. After careful consideration of the comment the sentence is being retained in order to emphasize and remind attorneys and agents of the obligations imposed by §1.346.

New paragraph (i) provides for the Office requiring the applicant to supply information pursuant to paragraph (a) of §1.56 in order for the Office to decide any issues relating to paragraphs (c) and (d) of §1.56, whether or not such issues arise as a result of a petition or a protest, or arise from other sources, e.g., an examiner discovering the issue while studying the application file. Any requirements for information under new paragraph (i) will be ex parte in nature between the Office and the applicant. The ex parte nature of the requirements for information under new paragraph (i) differs from past practice under which information was required, or requested, from applicant and one or more petitioners or protestors in some cases.

Rejection of Claims

Five comments were submitted relating to new paragraph (c) of §1.106. Two of the comments favored the paragraph as written and three recommended modification or clarification of the paragraph to ensure that it is not inconsistent with *In re Ruff, et al.*, 45 CCPA 1037, 118 USPQ 340 (CCPA 1958), and subsequent decisions. No modification or clarification of the paragraph is considered necessary since the intent of the paragraph was not to change current practice, but was merely to emphasize the importance placed on admissions and to make §1.106 more closely reflect current practice, which includes practice following *In re Ruff, et al.*, and subsequent decisions. The amendments to §1.106 are adopted as proposed.

Section 1.106 is amended to include a new paragraph (c) which emphasizes the importance placed on admissions by the applicant or the patent owner in a reexamination proceeding insofar as matters affecting patentability are concerned. Paragraph (c) includes a reference to the use of rejections based upon facts within the knowledge of the examiner as provided in §1.107. Paragraph (c) does not constitute a change in practice, but does result in §1.106 more closely reflecting current practice.

Reissue Oath or Declaration

Ten persons commented on §1.175. Four comments were received in support of the proposed change. Three of these favorable comments were from patent law groups. Of the six comments received opposing the change, two were from patent law groups. Eleven comments received at the Apr. 16, 1981, hearing on reexamination argued for retraction of the "Dann Amendments" which included §1.175(a)(4). Four comments at the Apr. 16, 1981, hearing favored retaining the "Dann Amendments". The arguments supporting the change were generally that paragraph (a)(4) was not necessary in view of the new reexamination procedure. The arguments opposing the deletion were generally that an inter partes practice before the Office is desirable from the standpoint of the judiciary and for a complete resolution of issues. After careful consideration of all of the arguments and the resources available in the Patent and Trademark Office, it is felt that the practice under paragraph (a)(4) of §1.175 should be discontinued and paragraph (a)(4) should be cancelled.

The numbering of paragraphs (a)(5) and (6) is not being changed. Proposed paragraph 1.175(a)(6) is being adopted as new paragraph 1.175(a)(7). The proposed wording is otherwise being adopted without change.

Amended §1.175 eliminates paragraph (a)(4). Under paragraph (a)(4), the Office gave advisory opinions on patentability over additional prior art without any changes in the patent claims. The courts have generally refused to give preclusive effect to these advisory opinions. See *PIC, Inc.* v. *Prescon Corp.*, 485 F. Supp. 1302, 205 USPQ 228 (D. Del. 1980), and *Rohm and Haas Co.* v. *Mobil Oil Corp.*, 525 F. Supp. 1298, 212 USPQ 354 (D. Del. 1981). Accordingly, in view of the implementation of patent reexamination pursuant to Pub. L. 96-517 it is appropriate to discontinue the advisory opinions provided pursuant to §1.175(a)(4). Under amended §1.175 an applicant for reissue of a patent will be required to file with the reissue application a statement under oath or declaration specifically averring a defect in the patent, e.g., "a defective specification or drawing," or an excess or insufficiency in the claims. Amended §1.175 also requires, in paragraphs (a)(5) and (a)(6), that applicant specify "errors" as opposed to "what might be deemed to be errors." Amended §1.175 effectively eliminates Office consideration of the merits of "no defect" reissue applications since any such "no defect" reissue applications filed after July 1, 1982, the effective date of the changes to §1.175, will not be examined as to questions of patentability. In addition, §1.175(a)(7) has been added to parallel the provisions in §1.65 requiring the same acknowledgment of the duty of disclosure in the oath or declaration of reissue applications as in the case of non-reissue applications.

Delay in Examination of Reissue Applications

Six comments were received relative to the proposed changes in §1.176. One comment supported, and five comments opposed, deleting the two month waiting period before action could be taken by an examiner in a reissue application. The opposing comments favored retaining the two month period to provide an opportunity for interested parties to submit information relating to the examination of a reissue application after notice of the filing thereof has been published in the Official Ga-

zette. Since the notices under §1.11 will continue to be published, no need is seen to change §1.176. The proposed change is therefore not adopted.

Examiner's Answer

Only one comment was made relating to the proposed addition of paragraph (c) to §1.193. It suggested including a minimum time period for response in the rule. This suggestion was not adopted because in some circumstances it may be appropriate to set a shorter or a longer period for the reply brief. The amendments to §1.193 are adopted as proposed.

Paragraph (c) adds to §1.193 a provision that any decision rejecting claims pursuant to §1.56(d) in an application already on appeal from a rejection based on other grounds shall constitute a supplemental examiner's answer introducing a new ground of rejection and removing the suspension of the appeal introduced pursuant to §1.56(e). Prior to entering any such supplemental examiner's answer under paragagph (c), the Office may require information from applicant pursuant to paragraph (i) of §1.56. Under paragraph (c) of §1.193, the appellant may file a reply to the supplemental examiner's answer. Paragraph (c) provides that the appellant's reply to the supplemental examiner's answer will be considered and responded to as necessary with appellant being provided with an additional month, or such other time as may be set, within which to reply to any such response from the Office. After introduction of a supplemental examiner's answer pursuant to paragraph (c) and any replies and response thereto, the application will be forwarded to the Board of Appeals for consideration.

Protests by the Public Against Pending Applications

Fifteen persons commented on the proposed amendment of §1.291. Two persons suggested that protests be acknowledged by more than the return of a self-addressed postcard. The suggestion has been adopted to the extent of providing for an acknowledgment of the entry of a protest in a reissue application file to be sent to the member of the public filing the protest. The suggestion has not been adopted insofar as original applications are concerned since these applications are generally required to be kept in confidence under 35 U.S.C. 122. Further, the use of return postcards is an established method of receiving acknowledgment from the Office that a paper has been filed. By merely returning the postcard to a protestor in an application for an original patent and directing Office initiated communications solely to applicant, the amount of Office resources required will be minimized.

Several persons commented that the protest proceeding should be more inter partes. The weight of the comments received at the hearings held on Apr. 16, 1981, and Feb. 4, 1982, and in writing, favored ex parte proceedings. To ensure that the proceedings are essentially ex parte, a sentence is being added to paragraph (c) of §1.291, indicating that active participation by a member of public ends with the filing of the protest. To retain the inter partes nature of the protest would be contrary to the majority of the comments received and to one of the major purposes of the rule change, i.e., to reduce the amount of time spent by the Office in examining protested applications. The amendments to paragraphs (a) and (b) of §1.291 are adopted as proposed and paragraph (c) is being revised as indicated above.

Amended §1.291 continues to permit protests by the public against pending original and reissue applications. The protest may include any grounds which the member of the public filing the protest believes to be applicable.

Amended paragraph (a) of §1.291 provides for entry of a protest in the application file if the protest specifically identifies the application, is timely submitted, and is either served upon the applicant in accordance with §1.248, or filed with the Office in duplicate, in the event service is not possible. The comments made above in the discussion of new paragraph (f) of §1.56 regarding the timeliness of the filing or submission, specific identification of the application, and service on the applicant, are also applicable to the amendments of paragraph (a) of §1.291. The requirement that the Office acknowledge the filing of a protest is deleted from paragraph (a), but is covered in paragraph (c).

New paragraph (b) of §1.291 assures members of the public that a protest will be considered by the Office if (1) it specifically identifies the application to which it is directed; (2) it is timely submitted; (3) it is properly served upon the applicant in accordance with §1.248, or is filed with the Office the duplicate in the event service is not possible; (4) it includes a listing of the patents, publications or other information relied upon and a concise explanation of the relevance of each listed item; (5) it includes a copy of each listed patent or publication or other item of information in written form, or at least the pertinent portions thereof; and (6) it includes an English language translation of all the necessary and pertinent parts of any non-English language document relied upon. It is considered desirable that §1.291 advise members of the public as to the contents which should be included in any protest since there will be no Office communications directed to the member of the public submitting the protest under paragraph (c). Thus, under paragraph (c) members of the public will not be given an opportunity to complete any protest which is incomplete. Amended paragraph (c) provides for the acknowledgment of the entry of a protest in a reissue application file.

Amended paragraph (c) of §1.291 provides that a member of the public filing a protest in an application for an original patent will not receive any communications from the Office relating to the protest, other than the return of a self-addressed postcard acknowledging receipt of the protest. Amended paragraph (c) of §1.291 does not permit the member of the public filing the protest, or any other member of the public, to contact the Office as to the disposition, or status, of the protest or to participate in any Office proceedings relating to the protest. The disposition of the protest, once it has been filed will, under paragraph (c), be an ex parte matter between the Office and the applicant. However, applications which are open to the public may be inspected pursuant to §1.11.

Amended paragraph (c) provides for the Office to communicate with the applicant regarding any protest entered in the application file. Under paragraph (c), the applicant could be required by the Office to respond to the protest. Any response would be ex parte and would not be served on the member of the public filing the protest. Paragraph (c) provides for the Office to require applicant to supply information pursuant to pargraph (a) of §1.56 in order for the Office to decide any issues raised by the protest. Requirements for information under paragraph (c) will be ex parte in nature between the Office and the applicant. The ex parte nature of the requirements for information under paragraph (c) differs from past practice under which information could be required, or requested, from applicant and one or more protestors. Under amended paragraph (c), the active participation of the protestor ends with the filing of the protest and no further submission on behalf of the protestor will be acknowledged or considered unless such submission raises new issues which could not have been earlier presented, and thereby constitutes a new protest. Mere arguments relating to an Office action or an applicant's response would not qualify as a new protest.

Duty of Disclosure in Reexamination Proceedings

Only two comments were received relative to proposed§1.555. One comment argued that the Office should never ignore a violation of the duty of disclosure or leave it hanging. In response thereto, neither the statute nor the presently existing reexamination rules provide for reexamination on grounds other than those based on patents or printed publications. The second comment questioned whether a patent owner has a duty to cite new prior art after a request but prior to an order to reexamine. No further clarification of the section is necessary since §1.555(a) specifies when the patent owner should file a prior art statement in a reexamination

proceeding. The amendments to §1.555 are adopted as proposed.

Amended §1.555 makes the duty of disclosure in reexamination proceedings more consistent with the duty of disclosure in patent applications. Paragraph (a) of §1.555 specifies that a duty of candor and good faith toward the Patent and Trademark Office rests on the patent owner or involved employees of the patent owner, on each attorney or agent who represents the patent owner, and on every other individual who is substantively involved on behalf of the patent owner in a reexamination proceeding. This rule is consistent with the duty set forth in §1.56(a) insofar as patent applications are concerned, except that in paragraph (a) of §1.555 the patent owner is specified rather than the inventor as set forth in paragraph (a) of §1.56. This does not, however, impose the responsibility for compliance with the duty of disclosure on a corporate entity or organization but leaves the responsibility with involved individuals in the corporation or other organization. Paragraph (a) of §1.555 places a requirement on the individuals identified to bring to the attention of the Office patents or printed publications material to the reexamination which have not been previously made of record in the patent file and specifies how that should be accomplished.

Amended paragraph (b) of §1.555 essentially parallels existing paragraph (b) of §1.56 and makes similar provisions applicable to disclosures in reexamination proceedings.

Amended paragraph (c) of §1.555 provides that the duties of candor, good faith, and disclosure required in paragraph (a) of §1.555 have not been complied with if any fraud was practiced or attempted on the Office or there was any violation of the duty of disclosure through bad faith or gross negligence by, or on behalf of, the patent owner in the reexamination proceeding. The language of paragraph (c) refers to fraud or violation of the duty of disclosure in the reexamination proceeding since such conduct during the pendency of applications is covered by §1.56.

Amended paragraph (d) of §1.555 affirms that the responsibility for compliance with §1.555 rests upon the individuals identified in paragraph (a). Paragraph (d) also provides that no evaluation will be made in the reexamination proceeding by the Office as to compliance with §1.555. Paragraph (d) of §1.555 also provides that questions of compliance with §1.555 which are discovered during a reexamination proceeding will be noted as unresolved questions in accordance with present §1.552(c). Paragraph (d) will not preclude the patent owner from filing a reissue application to have questions of candor, good faith, and duty of disclosure considered and resolved, including such questions which arise during a reexamination proceeding, so long as the requirements of 35 U.S.C. 251 have been met. Paragraph (d) does not preclude suspension or disbarment proceedings under present §1.348 based upon conduct during a reexamination proceeding.

Concurrent Office Proceedings

Four comments were received on §1.565. One comment proposed adding a sentence at the end of paragraph (b) of §1.565 reflecting that reexamination would only be stayed in extraordinary situations. This suggestion has not been adopted since it is considered inappropriate to attempt to further define by rule the circumstances under which a stay of the reexamination may be appropriate. Two comments were received raising questions as to the treatment, during a merged reissue and reexamination proceeding, of broader claims which are present therein because of a reissue application which contained broadened claims. No clarification or change is necessary since the broadened claims are properly in the merged proceeding during the period it is merged. Such broader claims which are present in both the reissue and reexamination files during the pendency of the merged proceeding will be treated in accordance with the reissue statute and case law during the pendency of the merged proceeding. If the merged proceeding ceases to exist because of the abandonment of the reissue application, the claims in the reexamination file, including any broadened claims, will be examined in accordance with the reexamination statute and rules. Finally, one comment did not agree with merging reissue and reexamination proceedings because the merger is not seen to produce cost savings or other salutary results. One of the reasons for the merged proceedings is to ensure that claims of differing scope and inconsistent responses are not presented at the same time in different proceedings in the same patent. Moreover, since the proceedings are concurrent rather than sequential, a significant savings in resources and overall pendency time may be realized by merging in many cases.

The amendment to §1.565 clarifies the proposed language of paragraph (b), eliminates from paragraph (b) the last two sentences relating to the treatment of concurrent reexamination and reissue proceedings, and adds a new paragraph (d) relating to this subject. The clarification in paragraph (b) is intended to avoid misinterpretations relating to stay determinations where concurrent litigation or reissue applications are involved.

Under new paragraph (d), which is consistent with the practice presently in effect under paragraph (b), if a reissue application and a reexamination proceeding on which an order pursuant to present §1.525 has been mailed are pending concurrently on a patent, a decision will normally be made to merge the two proceedings or to stay one of the proceedings. New paragraph (d) also provides that where merger of a reissue application and a reexamination proceeding is ordered, the merged examination will be conducted in accordance with present §§1.171–1.179. The examiner, in examining the merged proceeding, will apply the reissue statute and case law, in addition to applicable provisions of §§1.171–1.179, to the merged proceeding. This is appropriate in view of the fact that the statutory provisions for reissue applications and reissue application examination include, *inter alia*, provisions equivalent to 35 U.S.C. 305 relating to the conduct of reexamination proceedings. New paragraph (d) of §1.565 makes clear that the patent owner must place and maintain the same claims in the reissue application and the reexamination proceeding during the pendency of the merged proceeding. Under new paragraph (d) of §1.565 the examiner's actions and any responses by the patent owner in a merged proceeding will apply to both the reissue application and the reexamination proceeding and will be physically entered into both files. New paragraph (d) also provides that any reexamination proceeding merged with a reissue application shall be terminated by the grant of the reissued patent. The amendments to §1.565 are adopted with the changes or clarification indicated in paragraph (b).

Reexamination Certificate

Section 1.570, as amended, revises paragraph (e) to refer to new paragraph (d) of §1.565 rather than paragraph (b) in order to reflect the changes in §1.565.

No comments were received concerning the section and it is adopted without change.

Interim Procedures on Applications Pending on Effective Date

On July 1, 1982, the revised procedures of §§1.56(d) and 1.193(c) will apply to any applications then pending which have not been the subject of a final Office decision on questions of fraud or violation of the duty of disclosure. Any petition to strike an application from the files or any protest against a pending application filed prior to July 1, 1982, will be governed by the rules in effect prior to that date. Any applications filed under §1.175(a)(4) prior to July 1, 1982, will be examined until the application is amended and a reissue patent issues thereon or the application becomes abandoned. For a discussion of the interim practice in effect prior to July 1, 1982, see 1013 O.G. 18–19.

Environmental, energy, and other considerations: The rule change will not have a significant impact on the

quality of the human environment or the conservation of energy resources.

The rule change will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act, Pub. L. 96–354).

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291.

List of Subjects in 37 CRF Part 1

Administrative practice and procedure, Courts, Freedom of information, Inventions and patents, Lawyers.

Amendment of Regulations

(Text of adopted rules appear in 37 CFR, revised July 1, 1983.)

Apr. 6, 1982.

GERALD J. MOSSINGHOFF,
Commissioner of Patents and Trademarks.

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[1019 O.G. 37]

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(100) **Interim Reissue, Reexamination, Protest, And Examination Procedures In Patent Cases Pending Proposed Revision of 37 CFR §§1.11, 1.56, 1.106, 1.175, 1.176, 1.193, 1.291, 1.555, 1.565, and 1.570.**

This notice sets forth, in general, the practice the Office intends to follow pending a final determination on the "Notice of proposed rulemaking" published in the Federal Register on November 10, 1981, at 46 F.R. 55666–55672. The "Notice of proposed rulemaking" is also being published in this issue of the Official Gazette.

Practice Relating To §1.11

Any reissue application which is presently open to inspection by the general public pursuant to present §1.11(b), and any reissue application filed before the effective date of a change in the rule, will continue to be open to inspection by the general public. No restriction of access to those reissue applications is contemplated at this time, either during their pendency before the Office, or after an abandonment of the reissue application. The filing of reissue applications will continue to be announced in the Official Gazette pending revision of §1.11(b).

Practice Relating To §1.56

Any issues arising under §1.56(d) prior to the effective date of a change in paragraph (d) will continue to be handled in accordance with paragraph (d) as it presently exists. If paragraph (d) is amended as proposed, the Office presently intends to apply the revised procedures to any applications then pending which have not been the subject of a final Office decision on questions of "fraud" or violation of the duty of disclosure.

Any petitions to strike applications from the files which have been filed prior to the date of publication of this Notice in the Official Gazette will continue to be treated in accordance with the practices in effect prior to this Official Gazette Notice via the appropriate sections of the Manual of Patent Examining Procedure.

Any petition to strike an application from the files which is filed after the date of publication of this Notice will be considered in accordance with the procedure set forth in the "Notice of proposed rulemaking" insofar as participation by the petitioner is concerned. Since the provisions of 37 CFR 1.56 now in effect do not guarantee a member of the public the right to participate fully in Office consideration of petitions to strike applications, it is considered appropriate and proper to restrict participation on behalf of a petitioner as set forth in the "Notice of proposed rulemaking" while such proposed rulemaking is pending. At this time the degree of participation is solely at the discretion of the Commissioner and the Commissioner is hereby acting in his discretion to restrict such participation. Accordingly, any petition to strike an application from the files which is filed after the date of publication of this Notice must include a self-addressed postcard specifically identifying the petition and the application to which the petition is directed if an acknowledgement of the filing of the petition is desired. A member of the public filing a petition to strike an application after the date of publication of this Notice will not receive any communications from the Office relating to the petition, other than the return of a self-addressed postcard which the Office will stamp and return in order to acknowledge receipt of the petition. All Office communications will be conducted with the applicant in accordance with the procedures set forth in the proposed rulemaking, which procedures are those currently in effect.

Practice Relating To §1.106

No interim practice is necessary regarding this proposed revision since it would not constitute a change in practice, but would merely make §1.106 more closely reflect current practice.

Practice Relating To §1.175

Any applications filed under §1.175(a)(4) prior to the effective date of any change in the rule will be examined until the application is amended and a reissue patent issues thereon or the application becomes abandoned.

Practice Relating To §1.176

The examination of any applications filed prior to the effective date of any change in the rule will continue to be delayed for two months after the announcement of the filing in the Official Gazette, except where the delay period is waived by a decision on a petition under 37 CFR 1.183.

Practice Relating To §1.193(c)

No interim practice is necessary regarding this proposed revision since the practice of rejecting claims pursuant to §1.56(d) will not be adopted prior to the effective date of a change in paragraph (d).

Practice Relating To §1.291

Any protest against a pending application which is filed after the date of publication of this Notice in the Official Gazette will be treated essentially in accordance with the procedures set forth in the "Notice of proposed rulemaking." Any protests which have been filed prior to the date of publication of this Notice in the Official Gazette will continue to be treated in accordance with the practices in effect prior to this Official Gazette Notice via the appropriate sections of the Manual of Patent Examining Procedure. Since the provisions of 37 CFR 1.291 now in effect do not guarantee a member of the public the right to participate fully in Office consideration of protests filed under §1.291, it is considered appropriate and proper to restrict participation on behalf of a protestor essentially as set forth in the "Notice of proposed rulemaking" while such proposed rulemaking is pending. At this time the degree of participation is solely at the discretion of the Commissioner and the Commissioner is hereby acting in his discretion to restrict such participation. Accordingly, any protest filed after the date of publication of this Notice will be acknowledged as set forth in present §1.291 on a self-addressed postcard which protestor is hereby advised to include with the protest. The self-addressed postcard must specifically identify the protest and the application to which the protest is directed, to the extent such identifying data for the application is known. A member of the public filing a protest against a pending application after the date of publication of this Notice will receive no communication from the Office relating to the protest, other than the self-addressed postcard which the Office will stamp and return in order to acknowledge receipt of the protest as set forth in present §1.291(a). All Office communications will be conducted with the applicant in accordance with the procedures set forth in the proposed rulemaking, which procedures are those currently in effect. Pending adoption of the proposed rulemaking the Office will consider protests which comply with present §1.291(a) even though the protest does

not include all the items enumerated in proposed new paragraph (b) of §1.291.

Practice Relating To §1.555

No interim practice is necessary regarding this proposed revision since it merely makes §1.555 more closely parallel §1.56 and more specifically defines the responsibility of a patent owner in a reexamination proceeding.

Practice Relating To §1.565

No interim practice is necessary regarding this proposed revision since it merely clarifies, but does not change, present practice.

Practice Relating To §1.570

No interim practice is necessary since this proposed revision merely reflects the paragraph change proposed in §1.565.

CONCLUSION

The present interim procedures will be in effect until further notice and pending a final determination on the proposed rulemaking.

DONALD J. QUIGG,
Nov. 16, 1981. *Deputy Commissioner of Patents & Trademarks.*

[1013 O.G. 18]

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(101) **Request for Comments on Proposed Expedited Patent Application Procedure**

The Patent and Trademark Office is seeking comments on the desirability of providing a new procedure for highly expedited handling and prosecution of a patent application upon the payment of a relatively large fee set to recover the full cost of the expedited processing. The purpose of the procedure would be to provide a patent to applicants who need or desire a patent very quickly and are willing to pay the costs. It is anticipated that the pendency of such an application would normally be a few months. The application would literally be hand-carried through most of the processing in the PTO.

Implementation of such a procedure would require additional staffing of personnel throughout the Office who would personally process the application or insure its immediate processing by regular personnel, and the implementation of special filing, processing, and examining procedures and requirements. Accordingly, the costs would be relatively high.

A program of this nature would only be contemplated to the extent that it would not interfere with achievement of the PTO goal of 18 months average pendency for patent applications in 1987. An outline of the proposed procedure to expedite an application is set forth below:

1. Applicant requests special expedited application.
   a. At time of filing or anytime during pendency of application.
2. Required fees at time of filing (or when requested):
   a. Normal filing fee.
   b. Normal issue fee.
   c. Special fee set to recover the full costs of the expedited processing (possibly $4,000-$5,000 depending on the degree of prosecution permitted after final rejection under 6e below).
3. Applicant would agree to special requirements:
   a. Submission of information disclosure statement.
   b. Immediate correction of drawing informalities and objections.
   c. One month shortened statutory period for response to Office actions (extendable under 37 CFR 1.136).
   d. Automatic election of first claimed invention.
4. Application provided special expedited prosecution throughout Office.
   a. Essentially walk-through processing.
   b. All processing done out-of-turn on immediate basis.
5. Specially designated expeditors for clerical processing throughout Patent and Trademark Office:
   a. Would personally perform certain processing steps where possible.
   b. If not possible, would wait with application for immediate performance of processing steps by regular personnel.
   c. Hand-carry application from step to step.
   d. Special expeditors might be designated employees in existing organizations or a special central clerical operation that would serve as expeditors and do or oversee the processing for most other operations.
6. Examiner processing:
   a. Highest priority for examination.
   b. One month shortened statutory period for response.
   c. Interviews strongly encouraged.
   d. More use of telephone.
      (1) To resolve minor problems.
      (2) For follow-up on interviews.
      (3) To notify applicant of Office mailing and nature of communication.
   e. After final practice.
      (1) Alternative I - Normal tight second action final practice.
      (2) Alternative II - More liberal after final practice.
7. Special distinctive marking on file wrapper.
8. All incoming envelopes, responses, and correspondence specially identified to permit rapid routing and processing.
   a. Preference for hand-carry of all responses to the PTO.
9. Central monitoring of application progress throughout Office to insure that application is not lost or delayed.
10. Special expedited printing procedure.
11. Rules change required to implement.
12. Possible starting date - Jan. 1, 1985.

Written comments on the desirability of the Office offering such a procedure should be submitted by Sept. 30, 1983, and addressed to the attention of R. Franklin Burnett, Crystal Plz. 3-11A13, Patent and Trademark Office, Washington, D.C. 20231. For further information contact R. Franklin Burnett by telephone at (703)557-3054.

DONALD J. QUIGG,
June 1, 1983. *Acting Commissioner of Patents and Trademarks.*

[1031 OG 53]

Department of Commerce
(102) **Patent and Trademark Office**

37 CFR Parts 1 and 5
[Docket No. 30422-64]
Revision of Foreign Filing License Procedure

Agency: Patent and Trademark Office, Commerce.

Action: Notice of proposed rulemaking.

Summary: The Patent and Trademark Office proposes to revise the rules of practice in patent cases to establish a streamlined procedure for granting a license for foreign filing. The term "transmitting" as used in the proposed rules would include transmittal of technical data to a foreign country for purposes of filing a patent application. The proposed rules also specify the content of a petition for retroactive license. The proposed changes would simplify the obtaining of foreign filing licenses for amendments, modifications, and supplements and would result in reduced work for both patent applicants and the Patent and Trademark Office. At the same time, national security protections would be strengthened.

Dates: Comments must be submitted on or before July 20, 1983; a public hearing will be held July 20, 1983; requests to present oral testimony should be received prior to July 13, 1983.

Addresses: Address written comments and requests to present oral testimony to the Commissioner of Patents and Trademarks; Attention: Kenneth L. Cage, Special Laws Administration, Group 220, Room 4–10D17, Washington, D.C. 20231. The hearing will be held in Room 3–11C24 of Building 3, Crystal Plaza, located at 2021 Jefferson Davis Highway, Arlington, VA. Written comments and transcripts of the public hearing will be available for public inspection in Room 3–11A13 of Building 3, Crystal Plaza.

For Further Information Contact: Kenneth L. Cage by telephone at (703) 557-2877 or by mail marked to his attention and addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Supplementary Information: Under the present procedures, all licenses for foreign filing of a patent application have the same scope, as set forth in current §5.15. The scope of these licenses, as held by the Court in *In re Gaertner,* 202 USPQ 714 (C.C.P.A. 1979), does not include amendments and modifications of an application which contain additional subject matter.

Under the proposed rules, there would be two types of licenses of differing scope for foreign filing. The first type under §5.15(a), the grant of which would be indicated on the filing receipt in accordance with §5.12(a) published at 48 FR 2696, would permit the transmittal for filing of the application and of any amendments or modifications to the application in a foreign country, even if "additional subject matter" were introduced into the foreign application provided the subject matter did not change the general nature of the subject matter disclosed and did not pertain to certain categories of potentially sensitive material which are set forth in proposed §5.15(a) (1)–(5). This scope of license under §5.15(a) would also be granted under §5.12(b) pursuant to §5.13 petition, if the §5.15(a) scope of license is indicated on the license grant.

The second type of license under §5.15(b) would be limited in scope to the original subject matter disclosed at the time the license was granted and would not cover "additional subject matter" as the phrase is currently interpreted (*In re Gaertner,* 202 USPQ 714 (C.C.P.A. 1979)). The licenses under §§5.12(b), 5.13, and 5.14 would be of the same scope as those granted under present practice unless a §5.15(a) license is indicated on the license grant. If a petition for a license under §5.12(b) is granted prior to the grant of the §5.12(a) filing receipt licenses, the former would merge into the latter and would be considered a §5.12(a) license for the purpose of proposed §5.15.

A new §5.20 is proposed which would set forth in the regulations the requirements to be met for the granting of a retroactive license. The proposed requirements include (1) a list of the foreign countries which received the information; (2) the date(s) of transmittal; (3) an oath or declaration which avers to (i) the non-sensitive nature of the material, (ii) a showing of diligence in attempting to obtain the license upon discovery of the error, and (iii) a showing of facts which support a conclusion of inadvertence; and (4) the required fee. The section as proposed also provides in paragraph (b) for review from a denial of a petition for a retroactive license.

A revised §5.11(a) is proposed which would set forth in the regulations a requirement that a license from the Commissioner of Patents and Trademarks is required before transmitting an application to a foreign country, if the United States application has not been on file for six months, or no application has been filed in the United States. This proposed rule change would more accurately reflect the intent of the statutes and make the rules more closely conform with the regulations of other agencies which deal with the export of technical data to a foreign country. The proposed change requiring a license before transmitting an application to a foreign country is not intended to interpret the language in 35 U.S.C. 184 "file or cause or authorize to be filed" as necessarily requiring a license before an application is transmitted to a foreign country. Further, the proposed change is not intended to imply that every transmission within six months of U.S. filing without a license is prohibited under the existing regulations, such as where an application has been transmitted to a foreign agent without an authorization to file a foreign application. The proposed regulations are intended to change existing practice by requiring a license in all situations to transmit an application abroad. This change is proposed under the authority of 35 U.S.C. 6 to assure adequate protection of sensitive material under title 35 and to provide for consistency with the Arms Control Act and the Export Administration Act and their implementing regulations.

A revised §5.11(b) is proposed which would state that applications under secrecy order under §5.2 cannot be transmitted or filed in a foreign country except in accordance with §5.5.

A revised §5.11(c) is proposed which would state that a license pursuant to paragraph (a) is not required where the invention is not made in the United States, or the U.S. application was on file for six months without a secrecy order being issued.

A new §5.11(d) is proposed which would state that a license for foreign filing may be revoked at any time upon written notice.

Sections 5.1, 5.12(b), 5.13, 5.14, 5.15 and 5.17, as proposed are revised to conform to the §5.11 requirement of a license for transmittal of an application to a foreign country.

Finally, §§5.12(b), 5.13, 5.14, 5.15, and 1.17, as proposed, also would refer to the new fees for these services.

Discussion of Specific Sections Proposed To Be Changed

Section 1.17(h) is proposed to be amended to include a specific reference to §5.20 petitions for retroactive licenses for which the petition fee is charged, rather than having the present retroactive license fee under §1.182 petitions. The fee for §5.12(b) licenses is new and is for special handling of these license request.

Section 5.1, as proposed, would reflect the proposed §5.11 license requirement for transmittal to a foreign country.

Section 5.11, as proposed, would require a license for transmitting an application to a foreign country for filing if the U.S. application has not been on file for at least six months prior to the date of transmittal, or no application has been filed in the United States. This will enable the Patent and Trademark Office to better exercise the export control functions set forth in §§5.18 and 5.19 established in accordance with 35 U.S.C. 184, the Arms Control Act of 1977 and the Export Administration Act of 1979, respectively.

Under these Acts, the export of technical data is the activity to be controlled. Proposed §5.11(a) controls export activity by requiring a license for transmittal of technical data in connection with foreign filing of an application and to that extent implements the Arms Control Act and the Export Administration Act. If a license as required by proposed §5.11 is obtained under §§5.12, 5.13 or 5.14, no license for the export of technical data to a foreign country in connection with a patent application is required under the Export Administration Act of 1979 or the Arms Control Act of 1977. It is emphasized that the scope of the license for transmittal of technical data is limited to transmitting an application for foreign filing and does not include selling or using the technical data in a foreign country. These latter acts continue to require separate licenses under the Export Administration Act and the Arms Control Act.

Also, the transmittal of technical data in any form to a foreign country for purposes other than filing or supporting the filing of a patent application or consideration

whether a patent application should be filed is not controlled by title 35 United States Code or the exiting or proposed regulations in Part 5. The transmittal of data to a foreign country in such cases would be subject to other laws and regulations such as the export and arms control regulations.

Section 5.11(b), as proposed, states that an application cannot be transmitted to a foreign country when the corresponding United States application is under secrecy order except under §5.5.

Section 5.11(c), as proposed, states that no license is required if the invention was not made in the United States, or the application was on file in the United States at least six months and is not under a secrecy order issued under §5.2.

Section 5.11(d), as proposed, states that any license for foreign filing may be revoked at any time by written notification.

Section 5.12(b), as proposed, would refer to the license fee under proposed §1.17(h).

Section 5.13, as proposed, would refer to the fee under proposed §1.17(h) for a petition for license where no corresponding national or international application has been filed in the United States.

Section 5.14(a), as proposed, would indicate that petitions under this section require a fee as set forth in proposed§1.17(h).

The other changes make grammatical corrections and would not alter the intent of the section.

Section 5.14(c), as proposed, would reflect the proposed§5.11 license requirement for transmittal to a foreign country.

Section 5.15, as proposed, would change the scope of licenses granted under §5.12(a). Paragraph (a) of §5.15 defines the scope of licenses to be granted under §5.12(a), the granting of which is indicated on the filing receipt. This license permits transmitting corresponding subject matter in the application to any foreign country for filing and any amendments, modifications, and supplements, including divisions, changes or supporting matter consisting of the illustration, exemplification or explanation of subject matter disclosed in the application. This includes new matter which does not change the general nature of subject matter disclosed and does not pertain to certain prohibited subjects or areas listed on various export restriction lists. These lists are established by the Department of State, the Department of Commerce, the Department of Energy, and various executive orders and statutes.

These changes also permit an applicant to take action in the prosecution of the foreign or international application and submit supporting data such as affidavits, test data or the like as long as it directly relates to the application and does not pertain to the prohibited subjects or areas enumerated in §5.15(a).

New paragraph (b) of §5.15, as proposed, would define the scope of a license granted under §5.12(b) to be the same as a license granted under the provisions of present §5.15. The existing prohibition against the filing of "subject matter additional to that covered by the license" is being continued. Accordingly, court interpretations of this language would still apply. Only the scope of a §5.12(a) license would be different from foreign filing licenses which have been granted in the past. Subject matter listed in §5.15(a)(1)–(a)(5) would require an additional license, regardless of which provision authorized the original license grant.

New paragraph (c) of §5.15, as proposed, would define the scope of a license granted pursuant of §5.13 to be of the same scope as a paragraph (a) license, if it is indicated on the license grant.

New paragraph (d) of §5.15, as proposed, would provide for a reorganization of paragraphs with no significant change in substance.

New paragraph (e) of §5.15, as proposed, would recite the situations in which a license would be required to file any amendment or other papers abroad. Amendments to applications under both types of licenses are covered. Any amendment to an application licensed under proposed §512(a) requires a separate license only if it pertains to specifically identified areas or subjects. Any amendment to an application licensed under §5.12(b) requires a separate license if the amendment discloses additional subject matter.

Paragraph (f) of §5.15, as proposed, would set forth the licensing requirements for combining or dividing applications. If any of the applications have not been licensed under §5.12(a), then any additional subject matter must be separately licensed. If all of the applications have been licensed under §512(a), then only subject matter listed in paragraph 5.15(a)(1)–(a)(5) need be separately licensed.

Paragraph (g) of §5.15, as proposed, would include a reference to the section dealing with the requirements for a petition for a retroactive license.

Section 5.17, as proposed, would include the transmittal requirement of proposed §5.11 in the use of a license.

Section 5.20, as proposed, is new and would set forth the requirements for seeking a retroactive license.

New §5.20(a) requires identification of the subject matter which is to be licensed as in §§5.13 or 5.14. New §5.20 (a)(1) and (a)(2) identify the specific proscribed transmittal for filing for which the license is made retroactive. New §5.20(a)(3) provides for the specific showing of inadvertence. New §5.20(a)(4) refers to the required fee. New §5.20(b) provides for time periods to renew petitions that have been denied, and procedures to be followed after denial of a renewed petition.

Section 5.23, as proposed, would reflect the new organizational title.

Environmental, energy, and other considerations: The proposed rule change will not have a significant impact on the quality of the human environment or the conservation of energy resources.

The proposed rule change will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act. Pub. L. 96-354) for several reasons. Under this proposed rulemaking, small entities would be able to obtain licenses without filing separate requests therefor. In general, the rule change will also expedite proceedings before the Patent and Trademark Office, changing existing procedures where they can be simplified.

The Patent and Trademark Office has determined that this proposed rule change is not a major rule under Executive Order 12291. The annual effect on the economy will be less than $100 million. There will be no major increases in cost or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. There will be no significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

This proposed rule change would not impose a burden under the Paperwork Reduction Act of 1980, 44 U.S.C. 3401 *et seq.*, since no additional recordkeeping or reporting requirements are placed on the public.

List of Subjects

37 CFR Part 1

Administrative practice and procedure, Courts, Freedom of information, Inventions and patents, Lawyers, Small businesses.

37 CFR Part 5

Classified information, Foreign relations, Inventions and patents.

Proposed Amendment of Regulations

Notice is hereby given that, pursuant to the authority granted to the Commissioner of Patents and Trademarks by 35 U.S.C. 6, the Patent and Trademark Office proposes to amend Title 37 of the Code of Federal Regulations as set forth below.

It is proposed to amend 37 CFR, Parts 1 and 5 as fol-

lows, with deletions indicated by brackets and additions by arrows:

PART 1–[AMENDED]

1. Section 1.17 is proposed to be amended by revising paragraph (h) to read as follows:

§1.17 Patent application processing fees.

* * * * *

(h) For filing a petition to the Commissioner under a section of ►Part 1 or 5◄ [this part] listed below which refers to this paragraph, $120.00.

— §1.47 –for filing by other than all the inventors or a person not the inventor
— §1.48 –for correction of inventorship
— §1.182–for decision on questions not specifically provided for
— §1.183–to suspend the rules
— §1.268–for late filing of interference settlement agreement
— ►§§5.13 and 5.14–for special handling of foreign filing license
— §5.20–for retroactive license◄

PART 5–[AMENDED]

2. Section 5.1 is proposed to be amended by revising paragraph (a) to read as follows:

§5.1 Defense inspection of certain applications.

(a) The provisions of this part shall apply to both national and international applications filed in the Patent and Trademark Office and, with respect to inventions made in the United States, to applications filed in any foreign country or any international authority other than the United States Receiving Office. The

(1) ►transmittal for◄ filing of a national or an international application in a foreign country or with an international authority other than the United States Receiving Office, or

(2) transmittal of an international application to a foreign agency or an international authority other than the United States Receiving Office is considered to be a foreign filing within the meaning of Chapter 17 of Title 35, United States Code.

* * * * *

3. The center heading preceding §5.11 and §5.11 are proposed to be amended by revising the center heading and paragraphs (a), (b), and (c), and adding new paragraph (d) to read as follows:

Licenses for Foreign ►Transmittal or◄ Filing

§5.11 License for ►transmitting◄ [filing] application ►on an invention made in the United States to a◄ [in] foreign country [or for transmitting international applications].

(a) [When no secrecy order has been issued under §5.2, a] ►A◄ license from the Commissioner of Patents and Trademarks [under 35 U.S.C. 184] is required before [filing] any application for patent or for the registration of a utility model, industrial design, or model [, in a foreign country, or transmitting an international application to any foreign patent agency or any international agency other than the United States Receiving Office, or causing or authorizing such filing or transmittal, with respect to] ►on◄ an invention made in the United States ►can be transmitted to a foreign country (including an international agency in a foreign country) for filing if:

(1) An application on the invention has been on file in the United States less than six months prior to the date on which the application is to be transmitted, or

(2) No application on the invention has been filed in the United States.

The license from the Commissioner of Patents and Trademarks referred to in this paragraph would be issued pursuant to, and meet the requirements of, 35 U.S.C. 184 and §§5.18 and 5.19 of this part.◄

[, if:

(1) The foreign application is to be filed or its filing caused or authorized before a national or international application for patent is filed in the United States, or

(2) The foreign application is to be filed, or its filing caused or authorized, or the transmittal of the international application is caused or authorized, prior to the expiration of six months from the filing of the application in the United States.]

(b) ►If a secrecy order has been issued under §5.2, an application cannot be transmitted to, or filed in, a foreign country (including an international agency in a foreign country), except in accordance with §5.5.◄ [When there is no secrecy order in effect, a license under 35 U.S.C. 184 is not required if:

(1) The invention was not made in the United States, or

(2) The foreign application is to be filed or the international application is to be transmitted, or its filing or transmittal caused or authorized, after the expiration of six months from the filing of the national application in the United States.]

(c) ►No license pursuant to paragraph (a) of this section is required if:

(1) the invention was not made in the United States, or

(2) the United States application is not subject to a secrecy order under §5.2, and was filed at least six months prior to the date on which the application is transmitted to a foreign country.◄ [When a secrecy order has been issued under §5.2, an application cannot be filed in a foreign country, nor can an international application be transmitted to any agency other than the United States Receiving Office except in accordance with §5.5.]

►(d) A license pursuant to paragraph (a) of this section can be revoked at any time upon written notification by the Patent and Trademark Office.◄

4. Section 5.12 is proposed to be amended by revising paragraph (b) to read as follows:

§5.12 Petition for license.

* * * * *

(b) Petitions for license under 35 U.S.C. 184 should be presented in letter form and [should] ►must◄ include ►any required fee,◄ petitioner's address, and full instructions for delivery of the requested license when it is to be delivered to other than the petitioner.

5. Section 5.13 is proposed to be revised to read as follows:

§5.13 Petition for license; no corresponding application.

►If◄ [Where there is] no corresponding national or international application ►has been filed in the United States◄, the petition for license ► under §5.12(b) ◄ must be accompanied by ►any required fee (§1.17(h)) and◄ a legible copy of the material upon which ►a ◄ license is desired. This copy will be retained as a measure of the license granted. For assistance in the identification of the subject matter of each license so issued, it is suggested that the petition or requesting letter be submitted in duplicate and provide a title and other description of the material. The duplicate copy of the petition will be returned with the license or other action on the petition. [Where an international application is being filed in the United States Receiving Office, the petition may accompany the international application.]

6. Section 5.14 is proposed to be amended by revising paragraphs (a) and (c) to read as follows:

§5.14 Petition for license; corresponding U.S. application.

(a) Where there is a corresponding United States application on file ►a◄ [the] petition for license ►under § 5.12(b) must include any required fee (§1.17(h)) and ◄ must identify this application by serial number, filing date, inventor, and title, ►but◄ [and] a copy of the material upon which the license is desired is not required. The subject matter licensed will be measured by the disclosure of the United States application. Where the title

is not descriptive, and the subject matter is clearly of no interest from a security standpoint, time may be saved by a short statement in the petition as to the nature of the invention.

* * * * *

(c) where the application to be [filed or] transmitted abroad ►for filing◄ contains matter not disclosed in the United States application or applications, including the case where the combining of two or more United States applications introduces subject matter not disclosed in any of them, a copy of the application as it is to be ► transmitted for filing◄ [filed] in the foreign country or international application ►as it◄ [which] is to be transmitted to a foreign international or national agency [as it is to be filed] ►for filing◄ in the Receiving Office must be furnished with the petition. If, however, all new matter in the foreign or international application to be ► transmitted◄ [filed] is readily identifiable, the new matter may be submitted in detail and the remainder by reference to the pertinent United States application or applications.

7. Section 5.15 is proposed to be amended by revising paragraph (a), redesignating paragraphs (b), and (c) as paragraphs (f) and (g) and revising new paragraphs (f) and (g) and adding new paragraphs (b), (c), (d), and (e) to read as follows:

§5.15 Scope of license.

(a) [A]►Grant of a◄ license ►under §5.12 (a) authorizes the transmittal of ◄ [to file] an application ► to◄ [in] a foreign country or [transmit] ►the transmittal of◄ an international application to any foreign ►patent agency◄ or international ►patent◄ agency [other than the United States Receiving Office, when granted,] ►where the subject matter of the foreign or international application corresponds to that of the domestic application. Further, this license◄ includes authority to forward all duplicate and formal papers to the foreign country or international agencies and to make amendments►, modifications and supplements, including new matter which does not change the general nature of the subject matter disclosed, at the time of transmittal, or later,◄ and ►to ◄ take any action in the prosecution of the foreign or international application [,] ►unless the paper, modification, amendment, supplement of action involves subject matter pertaining to:

(1) Defense services or articles designated in the United States Munitions List applicable at the time of filing, the unlicensed exportation of which is prohibited pursuant to the Arms Export Control Act of 1977;

(2) Restricted Data, sensitive nuclear technology or technology useful in the production or utilization of special nuclear material or atomic energy, the dissemination of which is subject to restrictions of the Atomic Energy Act of 1954, as amended, and the Nuclear Non-Proliferation Act of 1978, as implemented by the Regulations for unclassified Activities in Foreign Atomic Energy Programs;

(3) Articles, materials and supplies, the export of which is prohibited or restricted pursuant to the Export Administration Act of 1979, as implemented by the Export Administration Regulations:

(4) Information subject to classification in accordance with executive orders protecting national security information from disclosure; or

(5) Information, the dissemination, disclosure or exportation of which is restricted by a statute, regulation or executive order which amends or supersedes any of paragraphs (a)(1)–(4) of this section. ◄ [Provided subject matter additional to that covered by the license is not involved. In those cases in which no license is required to file the foreign application or transmit the international application, no license is required to file papers in connection with the prosecution of the foreign or international application not involving the disclosure of additional subject matter. Any paper filed abroad or with an international agency following the filing of a foreign or international application which involves the disclosure of additional subject matter must be separately licensed in the same manner as a foreign or international application.]

►(b) Grant of a license under §5.12(b) authorizes the transmittal of an application to a foreign country or the transmittal of an international application to any foreign patent agency or international patent agency. Further, this license includes authority to forward all duplicate and formal papers to the foreign patent agency or international patent agency and to make amendments, modifications or supplements to and take any action in the prosecution of the foreign or international application, provided subject matter additional to that covered by the license is not involved.

(c) Grant of a license under §5.12(b) pursuant to §5.13 shall have the same scope of a license granted in paragraph (a) of this section, if it is so specified in the license.

(d) In those cases in which no license is required to transmit the foreign application or the international application, no license is required to transmit papers in connection with the prosecution of the foreign or international application not involving the disclosure of additional subject matter.

(e) Any paper transmitted abroad or to an international patent agency following the transmittal of a foreign or international application which involves the disclosure of subject matter listed in paragraphs (a)(1)–(a)(5) of this section must be separately licensed in the same manner as a foreign or international application. Further, if no license has been granted under §5.12(a) on filing the corresponding United States application, any paper filed abroad or with an international patent agency which involves the disclosure of additional subject matter must be licensed in the same manner as a foreign or international application.◄

►(f)◄ [(b)] Licenses separately granted in connection with two or more United States applications may be exercised by combining or dividing the disclosures, as desired, provided►:

(1) Subject matter listed in paragraph (a)(1)–(a)(5) of this section is not introduced and,

(2) In the case where at least one of the licenses was obtained under §5.12(b), ◄ additional subject matter is not introduced.

►◄ [(c)] A license does not apply to acts done before the license was granted unless the petition specifically requests and describes the particular acts and the license is worded to apply to such acts. ►See §5.20.◄

8. Section 5.17 is proposed to be revised to read as follows:

§5.17 Who may use license.

Licenses may be used by anyone interested in the ►transmitting for◄ foreign filing or international transmittal for or on behalf of the inventor or the inventor's assigns.

9. A new §5.20 is proposed to be added to read as follows:

►§5.20 Petition for retroactive license.

(a) A petition for retroactive license under 35 U.S.C. 184 shall be presented in accordance with §5.13 or §5.14, and shall include:

(1) A listing of the foreign countries to which the patent application material was transmitted,

(2) The dates on which the material was transmitted,

(3) A verified statement containing:

(i) An averment that the subject matter in question was not under a secrecy order at the time it was transmitted and filed abroad, and that is not currently under a secrecy order,

(ii) A showing that the license has been diligently sought after discovery of the proscribed transmittal and foreign filing, and

(iii) An explanation of why the material was inadvertently transmitted and filed broad without the required license under §5.11 first having been obtained, and

(4) The required fee (§1.17(h)).

The above explanation must include a showing of facts from which a conclusion of inadvertence may be drawn rather than a mere allegation of inadvertence. The showing of facts should include statements by those persons having personal knowledge of the acts regarding transmitting and filing in a foreign country and should be accompanied by copies of any necessary supporting documents such as letters of transmittal or instructions for filing. The acts which are alleged to constitute inadvertence should cover the period from the time of transmission until actual filing of the petition under this section.

(b) If a petition for a retroactive license is denied, a time period of not less than thirty days shall be set, during which the petition may be renewed. Failure to renew the petition within the set time period will result in a final denial of the petition. If a renewed petition is denied, the denial is final unless recourse be had under §1.181 within two months of the date of the denial. If the petition for a retroactive license is denied with respect to the invention of a pending application and no petition under §1.181 has been filed, a final rejection of the application under 35 U.S.C. 185 will be made.◄

10. Section 5.23 is proposed to be revised to read as follows:

§5.23 Correspondence.

All correspondence in connection with this part, including petitions, should be addressed to "Commissioner of Patents and Trademarks (Attention ►Licensing and Review◄ [Patent Security Division]), Washington, D.C. 20231."

GERALD J. MOSSINGHOFF,
May 18, 1983. *Commissioner of Patents and Trademarks.*

[FR Doc. 83-13810 Filed 5-20-83; 8:45 am]
BILLING CODE 3510-16

[1031 OG 41]
[Pending—no final action taken]

MISCELLANEOUS

(103) Hearings Before the Board of Appeals

In recent years the backlog of cases awaiting decision by the Board of Appeals has grown substantially. The average time elapsing between filing of the examiner's answer and final disposition is now roughly 17 months. Intensive effort by the Board and greater use of acting examiners-in-chief have been successful in raising the number of dispositions, but at the same time the number of appeals continues to grow. Thus in the first six months of 1974, the Board disposed of 1,193 appeals but received 1,915; in the last half of the year the Board disposed of 1,993 appeals but received 2,179.

In this connection it will be helpful if applicants and attorneys will dispense with oral hearings except where unusual circumstances are present which make a hearing important to the decision. Appeals submitted on brief receive just as careful consideration as those in which oral argument is presented, nor are any implications drawn as to the merits of the appeal from failure to request a hearing. It has been the Board's experience that in the ordinary case the hearing is not of great value in arriving at the ultimate decision.

Appellants are also encouraged to review cases where a hearing has already been requested, with a view to withdrawing the request if it is not necessary. It is particularly important that the Board be given timely notice whenever circumstances prevent the applicant or his representative from appearing at a scheduled hearing.

Rule 194 (37 CFR 1.194) limits oral argument to thirty minutes unless otherwise ordered by the Board. It has been the Board's experience, however, that effective arguments can be presented in less than thirty minutes in most cases. Effective immediately the Board will be informing appellants in the notices of hearing mailed to them that oral argument will be limited to *twenty minutes* unless otherwise ordered before the hearing begins.

The assistance of the public will be appreciated.

C. MARSHALL DANN,
Mar. 20, 1975. *Commissioner of Patents and Trademarks.*

[933 O.G. 1010]

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(104) Access to Interference Settlement Agreements by Government Agencies

Under the provisions of 35 U.S.C. §135(c), a party to an interference filing a copy of a settlement agreement may request that the copy be kept separate from the file of the interference, and made available only to Government agencies on written request, or to any person on a showing of good cause.

In order to provide the parties with a record of the inspection of such agreements by Government agencies, a representative of an agency will henceforth be required to present a written request, similar to the following, for each interference in which the inspection and/or copying of the agreement(s) is desired:

Date:_____

To: Clerk, Board of Patent Interferences

Pursuant to the provisions of 35 U.S.C. 135(c), please permit .....
the bearer(s) of this letter, to [ ] inspect and/or [ ] copy the settlement agreement(s) filed in Interference No. .....
The information gained from such inspection and/or copying will be kept in confidence and will not be disclosed to any other person except for official investigative or law enforcement purposes.

.....
Name, Title

.....
Agency

The request will be placed in the folder containing the copy of the agreement, where it may be inspected by the parties or their authorized representatives.

This procedure will be applicable only to inspection or copying by the representatives of Government agencies, since no person other than a representative of a Government agency, or of a party, will be granted access to a copy of an interference settlement agreement which is kept separate from the interference file except by way of a petition for access thereto, see M.P.E.P. §1002.02(k), item 2, and the parties to the interference are normally provided with copies of any such petition.

LUTRELLE F. PARKER,
June 5, 1978. *Acting Commissioner of Patents and Trademarks.*

[972 O.G. 2]

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(105) Accessibility of Non-Final Discovery Opinions and Orders Issued by the Board of Patent Interferences

A number of inquiries have been received from the patent bar and other interested persons relating to discovery practice under 37 C.F.R. §1.287 before the Board of Patent Interferences. The inquiries indicate a need for making available to the public non-final Board opinions, including concurring and dissenting opinions, as well as orders, made in the adjudication of discovery matters before the Board. While non-final opinions need not be made available to the public [5 U.S.C. §552(a)(2)], in order to satisfy the need, copies of non-final opinions issued by the Board will be kept in a file in the Service Branch of the Board in the U.S. Patent and Trademark Office (Crystal Plaza, Building 6, Eleventh Floor, Room 1116, Arlington, Virginia). Opinions in the file may be reviewed by the public during normal business hours (8:30 A.M. to 5:00 P.M.). Copies of opinions may be made by the public on reproducing equipment in the

Service Branch with tokens at a cost of $0.15 per page or copies may be ordered at a cost of $0.30 per page [37 C.F.R. 1.21(b)].

In view of the provisions of 35 U.S.C. §122 and 37 C.F.R. §1.11(a), a consent will be obtained by the Office from all parties in an interference before an opinion issued in connection with the interference is placed in the file if the interference file is not otherwise available to the public. Preliminary indications are that the parties and their counsel generally consent.

In order to obtain optimum dissemination of the information contained in the file, opinions placed therein will be indexed according to specific topics. Copies of the index will be updated from time to time as the need occurs. Specific questions relating to the index and file may be directed to the Patent Interference Examiners.

The initial index is as follows:

Index

1.00 Discovery in general [37 C.F.R. §1.287]
- 1.10 Requests and service under §1.287(a)
- 1.20 Requests under §1.287(b)
- 1.30 Motions for additional discovery under §1.287(c)
  - 1.31 Related to derivation
  - 1.32 Related to abandonment, suppression, and concealment
  - 1.33 Related to inequitable conduct
  - 1.34 Other
- 1.40 Motions under §1.287(d)(1)
- 1.50 Action under §1.287(d)(2)
- 1.60 Agreements under §1.287(e)

C. MARSHALL DANN,
Mar. 5, 1976 *Commissioner of Patents and Trademarks.*

[944 O.G. 2098]

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(106) **Extensions of Time and Filing of Papers in Interferences**

A recent sample of the interferences declared during fiscal years 1971–1975 has shown that since the 1950–1959 period there has been an increase of 27 days in the approximately one and one-half year pendency time of the average interference. This increase has occurred in spite of the Commissioner's notice of April 24, 1964, 802 O.G. 601, and an extensive revision of the interference rules in 1965.

While the failure to achieve any reduction in average interference pendency time may in part be attributable to the adoption in 1971 of 37 CFR 1.287(a)(2), which provides for the setting of additional time periods for purposes of discovery, it appears that a considerable reduction would result if the parties were to adhere to the times originally set by the Office, rather than seeking extensions of those times. Accordingly, stipulations or motions for extensions of time under 37 CFR 1.245 will not henceforth be approved or granted, respectively, unless accompanied by a detailed showing of facts sufficient to establish that the action for which the extension is sought could not have been or cannot be taken or completed during the time previously set therefor, and that the entire extension appears necessary for the taking or completion of that action. Since the Office favors the amicable settlement of interferences, the foregoing requirement will be liberally applied in the case of a first request for extension of time for the purpose of negotiating settlement.

Another factor which adversely affects the pendency time of the average interference is the number of papers filed. While parties are certainly entitled to exercise their rights in filing papers provided for by the rules, many papers are also filed that are not provided for by the rules, such as replies to replies to oppositions to motions under 37 CFR 1.231, and replies to oppositions to motions or petitions under 37 CFR 1.243 or 1.244. These unprovided-for papers appear to be generally unnecessary, cause a considerable increase in the size of the interference files, and delay determination of the motions or petitions to which they relate. Therefore, in the future papers filed in interference proceedings will be given no consideration unless they are specifically provided for by the rules. In this regard, particular attention is directed to 37 CFR 1.228, 1.231(b), 1.237, 1.243 and 1.244.

C. MARSHALL DANN,
Nov. 9, 1976. *Commissioner of Patents and Trademarks.*

[953 O.G. 2]

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(107) **Petitions in Interference Cases From Decisions of The Board on Motions for Additional Discovery Under 37 CFR 1.287(c)**

Notwithstanding the clear statement in the last sentence of 37 CFR 1.287(c), parties in interference cases continue to seek review by the Commissioner of decisions of the Board of Patent Interferences on motions for additional discovery under 37 CFR 1.287(c). Review of such a decision can be had along with judicial review of a decision on the question of priority. *Cochran* v. *Kresock*, 530 F.2d 385, 188 USPQ 553 (CCPA 1976); *Comstock* v. *Kroekel*, 200 USPQ 548 (Comm'r. Pat. 1978). Accordingly, parties in interference cases are reminded that a petition to the Commissioner should not be filed for the purpose of seeking review of an interlocutory decision of the Board granting or denying a motion for additional discovery under 37 CFR 1.287(c). See also *Fenstermacher* v. *Daugherty*, 189 USPQ 536 (Comm'r. Pat. 1975) and *Sheehan* v. *Doyle*, 202 USPQ 783 (Comm'r. Pat. 1978). The filing of such a petition only serves to delay the ultimate disposition of interferences on the merits. The filing of a paper for the mere purpose of delay is not permitted by the rules. 37 CFR 1.346. The Board of Patent Interferences will no longer grant a stay of proceedings pending disposition of a petition to the Commissioner seeking review of a decision of the Board on a motion for additional discovery under 37 CFR 1.287(c).

SIDNEY A. DIAMOND,
Apr. 17, 1980. *Commissioner of Patents and Trademarks.*

[994 O.G. 28]

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(108) **Petitions in Interference Cases to Strike Applications for Alleged Violations of 37 CFR §1.56**

Not infrequently a party in an interference will file a petition requesting the Commissioner to enter an order under 37 CFR §1.56(d) striking from the files a patent application involved in an interference. The issues raised by such a petition have been determined to be ancillary to priority within the meaning of 37 CFR §1.258(a). See e.g., *Norton* v. *Curtiss*, 57 CCPA 1384, 433 F. 2d 779, 167 USPQ 532 (1970); *Langer* v. *Kaufman*, 59 CCPA 1261, 465 F. 2d 915, 175 USPQ 172 (1972). Hence, the issues may be considered by the Board of Patent Interferences at final hearing if properly and timely presented.

The normal disposition of a petition to strike an application involved in an interference is to dismiss the petition, without prejudice to renewal following termination of the interference. Such a disposition allows the parties to develop the issues before the Board of Patent Interferences. If the party filing the petition ultimately prevails in the interference, further action on the petition may be unnecessary. Should action on the petition be necessary, the Commissioner has the benefit of the view of the Board of Patent Interferences on the issues.

Under present practice, the Board of Patent Interferences generally will hold a petition to strike an application involved in an interference until the time for opposition has expired. The file is then forwarded to the Commissioner, where the petition is normally disposed of as indicated in the preceding paragraph. This practice is time consuming and needlessly delays the interference.

In order to prevent such delays, in the future the Patent Interference Examiner is authorized to enter an order dismissing a petition to strike an application involved in an interference, without prejudice to renewal of the petition after termination of the interference. The petition should be dismissed immediately upon receipt, without suspension of the interference.

Petitions to strike an application not involved in an interference will continue to be handled in the Office of the Assistant Commissioner for Patents in the manner previously announced.

SIDNEY A. DIAMOND,
Aug. 11, 1980. *Commissioner of Patents and Trademarks.*

[998 O.G. 8]

COMMISSIONER'S NOTICE

(109) Practice under 37 CFR §1.225(b)

When a junior party to an interference is placed under an order to show cause why judgment should not be entered pursuant to 37 CFR §1.225 and requests final hearing to contest an ancillary matter, either the junior or senior party may file a motion for permission to take testimony pursuant to 37 CFR §1.225(b) and the last sentence of 37 CFR §1.251(b). However, some uncertainty has arisen as to when the motion must be filed and what it must contain.

Motion by the Junior Party

When a junior party is placed under an order to show cause and the junior party desired a testimony period, the motion for permission to take testimony should be filed preferably before the time set for responding to the order to show cause. The motion will be considered timely, however, if filed no later than twenty (20) days after the Board of Patent Interferences enters an order setting final hearing.

There are instances where the requested testimony relates to priority. For example, the junior party may occasionally desire to take testimony to establish prior inventive acts alleged in a preliminary statement even though those acts are subsequent to the senior party's effective filing date. This situation arises when (1) the junior party's preliminary statement dates fall between the filing date of the senior party's involved application and the filing date of a prior application accorded to the senior party, (2) the junior party has unsuccessfully contended in a motion under 37 CFR §1.231 that the senior party should not be accorded benefit of the prior application, and (3) the junior party has requested final hearing to review the examiner's adverse decision on the motion.

When the requested testimony includes priority testimony, the motion to take testimony may be *pro forma, viz.*, a simple request that a testimony period be set to obtain priority evidence. Normally, however, when a junior party seeks to take testimony under 37 CFR §1.225(b), the proposed testimony relates solely to ancillary matters. When the requested testimony relates solely to ancillary matters, the motion must comply with the provisions of 37 CFR §1.225(b)—a showing of good cause must be submitted and a *pro forma* request would not be sufficient. See generally Rivise & Caesar, *Interference Law and Practice*, Vol. III, §§376–377 (1947).

Motion by the Senior Party

There are occasions when a senior party may desire a testimony period even if the junior party does not request a testimony period. See e.g., *Lorenian v. Winstead*, 127 USPQ 501 (Bd.Int. 1959). When a senior party desires a testimony period, the motion for permission to take testimony should be filed promptly after the Board of Patent Interferences enters an order setting final hearing, but in no event later than twenty (20) days after entry of such order. A senior party should take into account the fact that a junior party will begin preparation of a brief for final hearing after receiving notice of the briefing schedule. Therefore, a senior party should not be permitted to let a junior party expend unnecessary energy preparing a brief for final hearing if the senior party plans to move to take testimony.

As in the case of a junior party, a request to take testimony relating to priority may be *pro forma*. A request to take testimony limited to ancillary matters must comply with 37 CFR §1.225(b). See 37 CFR 1.251(b), last sentence.

RENE D. TEGTMEYER,
June 15, 1981. *Acting Commissioner of Patents and Trademarks.*

[1008 O.G. 9]

(110) Disclosure Document Program

This notice consolidates and supersedes the notices of Mar. 26, 1969 (862 O.G. 1) and Aug. 11, 1970 (878 O.G. 1) relating to the Patent Office Disclosure Document Program. Under this program the Patent Office accepts and preserves, for a period of two years, papers referred to as "Disclosure Documents." These papers may be used as evidence of the dates of conception of inventions.

The Program

A paper disclosing an invention and signed by the inventor or inventors may be forwarded to the Patent Office by the inventor (or by any one of the inventors when there are joint inventors), by the owner of the invention, or by the attorney or agent of the inventor(s) or owner. It will be retained for two years and then be destroyed unless it is referred to in a separate letter in a related patent application within said two years.

A Disclosure Document is not a patent application and the date of its receipt in the Patent Office will not become the effective filing date of any patent application subsequently filed. However, like patent applications, these documents will be kept in confidence by the Patent Office. If patent protection is desired, a patent application should be filed as soon as possible.

This program does not diminish the value of conventional witnessed and notarized records as evidence of conception of an invention, but it should provide a more credible form of evidence than that provided by the popular practice of mailing a disclosure to oneself or another person by registered mail. The program is made available as a service to those persons desiring to use it.

Content of Disclosure Document

Although there are no restrictions as to content and claims are not necessary, the benefits afforded by a Disclosure Document will depend directly upon the adequacy of the disclosure. Therefore, it is strongly urged that the document contain a clear and complete explanation of the manner and process of making and using the invention in sufficient detail to enable a person having ordinary knowledge in the field of the invention to make and use the invention. When the nature of the invention permits, a drawing or sketch should be included. The use or utility of the invention should be described, especially in chemical inventions.

The Disclosure Document must be limited to written matter or drawings on paper or other thin, flexible material, such as linen or plastic drafting material, having dimensions or being folded to dimensions not to exceed 8 1/2 by 13 inches. Photographs also are acceptable. Each page should be numbered. Text and drawings should be sufficiently dark to permit reproduction with commonly used office copying machines.

A $10 fee is charged for filing a Disclosure Document. Payment must accompany the Disclosure Document when it is submitted to the Patent Office.

In addition to the $10 fee, the Disclosure Document must be accompanied by a stamped, self-addressed envelope and a separate paper in duplicate, signed by the inventor, stating that he is the inventor and requesting

that the material be received for processing under the Disclosure Document Program. The papers will be stamped by the Patent Office with an identifying number and date of receipt, and the duplicate request will be returned in the self-addressed envelope together with a warning notice indicating that the Disclosure Document may be relied upon only as evidence and that a patent application should be diligently filed if patent protection is desired. The inventor's request may take the following form:

"The undersigned, being the inventor of the disclosed invention, requests that the enclosed papers be accepted under the Disclosure Document Program, and that they be preserved for a period of two years."

Retention

The Disclosure Document will be preserved in the Patent Office for two years after its receipt and will then be destroyed unless it is referred to in a separate letter in a related patent application filed within the two-year period. The Disclosure Document must be referred to in the separate letter by title, number, and date of receipt. Acknowledgment of receipt of such letters will be made in the next official communication or in separate letter from the Patent Office. Unless it is desired to have the Patent Office retain the Disclosure Document beyond the two-year period, it is not required that it be referred to in a patent application.

Warning as to Limitations

The two-year retention period should not be considered to be a "grace period" during which the inventor can wait to file his patent application without possible loss of benefits. It should be recognized that in establishing priority of invention an affidavit or testimony referring to a Disclosure Document must usually also establish diligence in completing the invention or in filing the patent application since the filing of the Disclosure Document.

Inventors are also reminded that any public use or sale in the United States, or publication of the invention anywhere in the world, more than one year prior to the filing of a patent application on that invention will prohibit the granting of a patent on that invention.

If the inventor is not familiar with what is considered to be "diligence in completing the invention" or "reduction to practice" under the patent law, or if he has other questions about patent matters, the Patent Office advises him to consult an attorney or agent registered to practice before the Patent Office. Patent attorneys and agents may be found in the telephone directories of most major cities. Also, many large cities have associations of patent attorneys which may be consulted.

RICHARD A. WAHL,
Jan. 4, 1971. *Assistant Commissioner of Patents.*

[883 O.G. 3]

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(111) **Suspension of Action Under 37 CFR 1.103 and Under 37 CFR 1.212**

The purpose of this notice is to clarify existing Office practice with respect to suspension of action. "Suspension of action" under 37 CFR 1.103 applies only to the situation where action is to be taken *by the Examiner.* In other words, action cannot be suspended in an application which contains an outstanding Office action awaiting response by the applicant.

Under 37 CFR 1.212, upon declaration of an interference, ex parte prosecution of an application is suspended and any outstanding Office actions are considered as withdrawn by operation of the rule. *Ex parte Peterson,* USPQ 119 (Commissioner of Patents, 1941). Upon termination of the interference, the Examiner will reinstate the action treated as withdrawn by operation of 37 CFR 1.212 and set a statutory period for response. The formats set forth in MPEP 1109.01 and MPEP 1109.02 may be followed.

Careful adherence to the distinction set forth above will prevent any question of abandonment from arising in connection with cases in which suspension of prosecution has occurred.

WILLIAM FELDMAN,
Mar. 7, 1978. *Deputy Assistant Commissioner for Patents.*

[969 O.G. 8]

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(112) **POSTAL SERVICE EMERGENCY CONTINGENCY PLAN**

The U.S. Patent and Trademark Office is establishing the following contingency plan for filing any paper or paying any fee in the Office in the event of an emergency caused by any major interruption in the mail service in the United States. Upon determination by the Commissioner of Patents and Trademarks that such an emergency exists, a notice activating the plan will be issued by the Commissioner. The activating notice will be published in the Wall Street Journal and made available in a special recorded telephone message at area code 703, 557-3158. Also, certain publications, patent bar groups, and other organizations closely associated with the patent system, will be notified. Termination of the program will be similarly announced. Where the postal emergency is not nationwide, the Commissioner will designate the areas of the United States in which the procedures outlined below will be in effect.

U.S. Department of Commerce District Offices (formerly referred to as Department of Commerce Field Offices) will be designated on an emergency basis, as receiving stations for filing papers and paying fees in the U.S. Patent and Trademark Office.

Upon determination that an emergency exists, the following procedures may be followed: All papers and fees should be enclosed in a sealed envelope addressed to the Patent and Trademark Office and deposited in one of the District Offices. Such papers will be considered as received in the U.S. Patent and Trademark Office on the day of deposit. The District Office will date stamp each envelope and the accompanying receipt card which completely identifies the deposited papers. The receipt card will be returned to the depositor. Applicants or their representatives should assure the legibility of the date stamp.

District Office deposits should be limited to checks in payment of issue fees, new application papers wherein priority dates or statutory bars may be involved, amendments where the six month statutory period for response is about to expire, trademark oppositions, Section 8 affidavits, trademark renewals, and to other papers for which the patent and trademark statutes do not provide a remedy for failure to obtain a particular date.

Where papers originate from overseas, it is suggested that the papers be mailed to a registered agent in Canada, with a request that the papers be forwarded by courier to the nearest District Office in the United States.

In regard to pending applications, if the time for taking any action or paying any fee expires during the period that the Commissioner declares to be an emergency, the time will be extended until one month after the end of the emergency period, provided that such extension does not exceed the maximum period for response provided for in the statutes.

Since this extension of time will be automatic, there will be no record in the individual files to indicate that a response filed during the extended period is in fact timely. In order to provide a complete record, applicants or their representatives should file a paper referring to this notice in each case in which a response is filed during the extended period.

The addresses of the Department of Commerce District Offices, subject to subsequent changes, are as follows:

ALBUQUERQUE, N.M., 87101, Room 316, U.S. Courthouse (505) 766-2386.
ANCHORAGE, 99501, 632 Sixth Ave., Hill Bldg., Suite 412 (907) 265-4597.
ATLANTA, 30309, Suite 523, 1401 Peachtree St., NE. (404) 526-6000.
BALTIMORE, 21202, 415 U.S. Customhouse, Gay and Lombard Sts. (301) 962-3560.
BIRMINGHAM, ALA., 35205, Suite 200-201, 908 S. 20th St. (205) 325-3327.
BOSTON, 02116, 10th Floor, 441 Stuart St. (617) 223-2312.
BUFFALO, N.Y., 14202, Room 1312, Federal Bldg., 111 W. Huron St. (716) 842-3208.
CHARLESTON, W. VA., 25301, 3000 New Federal Office Bldg., 500 Quarrier St. (304) 343-6181, Ext. 375.
CHEYENNE, WYO., 82001, 6022 O'Mahoney Federal Center, 2120 Capitol Ave. (307) 788-2151.
CHICAGO, 60603, Room 1406, Mid-Continental Plaza Bldg., 55 E. Monroe St. (312) 353-4450.
CINCINNATI, 45202, 8028 Federal Office Bldg., 550 Main St. (515) 684-2944.
CLEVELAND, 44114, Room 600, 666 Euclid Ave. (216) 522-4750.
COLUMBIA, S.C., 29204, Forest Center, 2611 Forest Dr. (803) 765-5345.
DALLAS, 75202, Room 3E7, 1100 Commerce St. (214) 749-1515.
DENVER, 80202, Room 161, New Custom House, 19th and Stout Sts. (303) 837-3246.
DES MOINES, IOWA, 50309, 609 Federal Bldg., 210 Walnut St. (515) 284-4222.
DETROIT, 48226, 445 Federal Bldg. (313) 226-3650.
GREENSBORO, N.C., 27402, 203 Federal Bldg., W. Market St., P.O. Box 1950. (919) 275-9111, Ext. 345.
HARTFORD, CONN., 06103, Room 610-B, Federal Office Bldg., 450 Main St. (203) 244-3530.
HONOLULU, 96813, 286 Alexander Young Bldg., 1015 Bishop St. (808) 546-8694.
HOUSTON, 77002, 201 Fannin, 1017 Federal Office Bldg. (713) 226-4231.
INDIANAPOLIS, 46204, 355 Federal Office Bldg., 46 E. Ohio St. (317) 269-6214.
KANSAS CITY, MO., 64106, Room 1840, 601 E. 12th St. (816) 374-3142.
LOS ANGELES, 90024, 11201 Federal Bldg., 11000 Wilshire Blvd. (213) 824-7591.
MEMPHIS, 38103, Room 710, 147 Jefferson Ave. (901) 534-3213.
MIAMI, 33130, Rm. 821, City National Bank Bldg., 25 W. Flagler St. (305) 350-5267.
MILWAUKEE, 53203, Straus Bldg., 238 W. Wisconsin Ave. (414) 224-3473.
MINNEAPOLIS, 55401, 306 Federal Bldg., 110 S. Fourth St. (612) 725-2133.
NEW ORLEANS, 70130, Room 432, International Trade Mart, 2 Canal St. (504) 589-6546.
NEW YORK, 10007, 41st Floor, Federal Office Bldg., 26 Federal Plaza, Foley Sq. (212) 264-0634.
NEWARK, N.J., 07102, Gateway Bldg., (4th Floor) (201) 645-6214.
PHILADELPHIA, 19106, 9448 Federal Bldg., 600 Arch St. (215) 597-2850.
PHOENIX, ARIZ., 85004, 508 Greater Arizona Savings Bldg., 112 N. Central Ave. (602) 261-3285.
PITTSBURGH, 15222, 431 Federal Bldg., 1000 Liberty Ave. (412) 644-2850.
PORTLAND, ORE., 97205, 921 SW. Washington St., Suite 521, Pittock Block. (503) 221-3001.
RENO, NEV., 89502, 2028 Federal Bldg., 300 Booth St. (702) 784-5203.
RICHMOND, VA., 23240, 8010 Federal Bldg., 400 N. 8th St. (804) 782-2246.
ST. LOUIS, 63105, Chromalloy Bldg., 120 S. Central Ave. (314) 622-4243.
SALT LAKE CITY, 84111, 1201 Federal Bldg., 125 S. State St. (801) 524-5116.
SAN FRANCISCO, 94102, Federal Bldg., Box 36013, 450 Golden Gate Ave., (415) 556-5860.
SAN JUAN, P.R., 00902, Room 100, Post Office Bldg., (809) 723-4640.
SAVANNAH, 31402, 235 U.S. Courthouse and Post Office Bldg., 125-29 Bull St. (912) 232-4204.
SEATTLE, 98109, 706 Lake Union Bldg., 1700 Westlake Ave. North (206) 442-5615.

July 18, 1975. C. MARSHALL DANN,
Commissioner of Patents and Trademarks.

[937 O.G. 386]

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(113) **Examiner Testimony**

As stated in Section 1701 of the Manual of Patent Examining Procedure, patent examiners are forbidden to testify as patent experts or to express opinions, in testimony or otherwise, as to the invalidity of any issued patent. Patent examiners have, in connection with litigation involving patent validity, been called to testify on factual matters. In those cases, the practice has been to permit the examiner to testify only upon the issuance of a subpoena.

Henceforth, patent examiners will be permitted to testify on deposition in patent suits, without the need for a subpoena, provided the following conditions are satisfied:

1. The party proposing to take the testimony will state in writing, that the questions to be asked of the examiner will be phrased to comply with the permissible scope of inquiry as outlined in the protective orders contained in the Court opinions in *In re Mayewsky*, 162 USPQ 86, 89 and *Shaffer Tool Works v. Joy Manufacturing Co.*, 167 USPQ 170, 171: ". . . the scope of the oral depositions of the patent examiners is hereby limited to matters of fact and must not go into hypothetical or speculative areas or the bases, reasons, mental processes, analyses, or conclusions of the patent examiners in acting upon the patent applications maturing into the patent [in suit]." 167 USPQ 171.
2. That in addition to complying with the requirements of Rule 30 of the Federal Rules of Civil Procedure, the party taking the testimony will agree to give notice of the taking of the deposition of the patent examiner to the Solicitor, at least thirty days prior to the date on which the taking of the deposition is desired.
3. That the party taking the deposition arrange with the Solicitor to notice the deposition at a place convenient to the Patent Office.

If the party desiring to take the testimony of the examiner does not agree to the conditions enumerated, the Patent Office will not permit the examiner to be deposed without a subpoena and compliance with the procedure set forth in Section 7.02, Department of Commerce Administrative Order 205-12, June 29, 1967 as amended April 10, 1970. That section states:

> In any case where it is sought by subpoena, order or other compulsory process or other demand of a court or other authority (hereinafter referred to as a "demand") to require the production or disclosure of any record in the files of the Department of Commerce or other information acquired by an officer or employee of the Department as a part of the performance of his official duties or because of his official status, the matter shall be immediately referred for determination to the appropriate official described in subsection 4.01 of this order. If such official has discretion with respect to disclosure and he determines that it would be improper to comply with the demand, or if he has no discretion with respect to disclosure, the matter shall be promptly referred to the Secretary of Commerce for final determination. Unless and until the Secretary deter-

mines that the records or information should be produced, the officer or employee who appears in answer to the demand shall inform the court or other authority (*a*) that the section 7 of this order prohibits the officer or employee from producing or disclosing the records or other information demanded without the prior approval of the Secretary of Commerce, and (*b*) that the demand has been, or is being, as the case may be, referred for the prompt consideration of the Secretary. The officer or employee shall also provide the court or other authority with a copy of the regulations prescribed in this section 7 of this order, and shall respectfully request the court or other authority to stay the demand pending the receipt of instructions or directions from the Secretary of Commerce concerning the demand.

ROBERT GOTTSCHALK,
Mar. 13, 1972. *Commissioner of Patents.*

[897 O.G. 762]

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(114) **No Change in Foreign Filing License Requirements**

It should be noted that the change to 37 CFR 5.19 deleting the requirement to obtain an export license for filing a patent application in a foreign country does not in any way alter the provisions of 35 U.S.C. 184. 35 U.S.C. 184 requires that a foreign filing license be obtained from the Patent and Trademark Office before any patent application, based on an invention made in the United States, is filed abroad unless a corresponding application has been on file in the USPTO for over six months.

Further information may be obtained by contacting Mr. T. H. Tubbesing at 703-557-2897, or Mr. Edward Drazdowsky at 703-557-2167.

WILLIAM FELDMAN,
Nov. 24, 1980. *Acting Assistant Commissioner, for Patents.*

[1001 O.G. 28]

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(115) **Department of Commerce**

Patent and Trademark Office

United States Adherence to the International Union for the Protection of New Varieties of Plants (UPOV)

On Nov. 12, 1980, the United States deposited its instrument of acceptance of the 1978 text of the UPOV Convention. The United States was the second State to adhere to this text, New Zealand having earlier done so.

The UPOV Convention will take effect with respect to the United States and the other adherents to the 1978 text upon a total of five adherences, three of which must be by present member States (States adhering to the 1961 text of the Convention). We expect at least three present member States to adhere shortly and the 1978 text to take effect, therefore, during 1981.

The United States deposited its instrument of acceptance on the basis of the legal protection offered for asexually reproduced plants under the plant patent law (35 U.S.C. 161–164). Accordingly, the Convention will apply only to asexually reproduced plants protected under this law. Steps are now being taken, however, by the Plant Variety Protection Office of the Department of Agriculture to conform the implementation of the Plant Variety Protection Act (7 U.S.C. 2321 et seq.) to the Convention's requirements. When this is done, the United States will notify the UPOV Secretariat that the Convention is also applicable in the United States to sexually reproduced plants protected under that Act.

Questions concerning the UPOV Convention may be directed to the Office of Legislation and International Affairs of the Patent and Trademark Office. This Office may be addressed as follows: Box 4, Commissioner of Patents and Trademarks, Washington, D.C. 20231. The Office's telephone number is (703) 557–3065.

SIDNEY A. DIAMOND,
Dec. 16, 1980 . *Commissioner of Patents and Trademarks.*

[1002 O.G. 102]

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(116) **Taking Effect in the United States of the International Convention for the Protection of New Varieties of Plants**

The International Convention for the Protection of New Varieties of Plants (the UPOV Convention) will take effect in the United States on Nov. 8, 1981. It will apply to all applications for the patenting of plants under the provisions of Title 35, United States Code, which are filed on or after Nov. 8, 1981. The actual filing date will govern in determining whether the Convention will apply to an application, even though the application may be entitled to an earlier effective date under section 119 or 120 of Title 35, United States Code.

In addition to the United States, the UPOV Convention will be in effect as of Nov. 8, 1981, in the following fourteen States: Belgium, Denmark, Federal Republic of Germany, France, Ireland, Israel, Italy, Netherlands, New Zealand, Republic of South Africa, Spain, Sweden, Switzerland, and the United Kingdom.

No changes in the patent law are needed to implement the UPOV Convention in the United States. An applicant for a plant patent will be required, however, to submit for registration a variety name for the plant to be patented. Registration is required by Article 13 of the UPOV Convention.

Registrability shall be determined in accordance with the International Code of Nomenclature for Cultivated Plants (1980). As an interim procedure pending the promulgation of an appropriate rule, inclusion of the variety name in the application will be accepted as a submission of the name for registration. No plant patent as a result of an application filed on or after Nov. 8, 1981, shall be issued without the registration of a variety name. Questions concerning this variety naming requirement or the UPOV Convention may be addressed to:

Mr. Michael K. Kirk, Director
Office of Legislation and
International Affairs
Box 4
U.S. Patent and Trademark Office
Washington, D.C. 20231

Mr. Kirk's telephone number is (703) 557-3065.

GERALD J. MOSSINGHOFF,
Oct. 15, 1981. *Commissioner of Patents and Trademarks.*

[1011 O.G. 27]

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(117) **Policy Regarding Exchange Agreements Under the Authority of 35 USC Section 6(a)**

Background

The Patent and Trademark Office (PTO), by virtue of Section 6(a) of Title 35, United States Code, is empowered to enter into exchange agreements with other organizations to further the use of patent and trademark information, and to facilitate the use and availability of that information. In recognition of these objectives, the PTO establishes the following guidelines and principles which shall apply when evaluating and entering into exchange agreements with other public, private, domestic and foreign agencies, firms and companies.

Nature of Exchange Agreements

Exchange agreements by the PTO will generally be for the purpose of (1) acquiring goods and services

which will assist the PTO in accomplishing its mission and achieving its goals; (2) reducing the cost to the government of processing activities associated with the examination of applications for patent and trademark registration; (3) fostering the dissemination of information contained in patent and trademark documents; and (4) furthering the general goal of automating patent and trademark examination processes.

In exchange agreements, the PTO and the industrial or commercial concerns will share in the cost and risks of the endeavor. Terms and conditions of each agreement, including the business arrangements, are negotiable within the limits of prevailing statutes and regulations and will be commensurate with the risks, involvement, and investment of the parties to the agreements. The PTO's intent is to offer as much latitude as practical in the agreement.

Each agreement will be negotiated on a case-by-case basis. Agreements will vary in size, complexity, scope and the nature of the materials, services, and/or products being exchanged by the parties. All exchange agreements will be subject to the availability of funds.

Incentives

Incentives provided by the PTO for the purpose of entering into exchange agreements may include, but are not limited to (1) providing copies of PTO documents; (2) providing computer processable data obtained from patents, trademark applications, trademark registrations, and other data sources developed by the PTO; (3) providing government furnished equipment necessary for the other party to fulfill the agreement; and (4) entering into joint programs where each party funds its own participation.

Considerations

The factors to be considered by the PTO prior to entering into an exchange agreement or providing incentives shall include, but will not be limited to the following considerations: (1) public or social need for the product(s) of the agreement; (2) enhanced dissemination of technological information; (3) benefits accruing to the public or the U.S. Government from the endeavor; (4) the desirability of private sector involvement in PTO programs; (5) the merit of the research, development or application proposed; (6) the degree of risk and financial participation by the other party; (7) the amount of proprietary data or other information to be furnished by the concern; (8) the rights in data to be granted to the PTO and the concern as a result of their contributions; (9) the willingness and ability of the concern to market and sell any resulting new or enhanced products on a reasonable basis; and (10) the impact of PTO sponsorship upon a given industry or area of commercial endeavor.

Administration

The Administrator for Automation is delegated the authority to enter into negotiations. The Commissioner of Patents and Trademarks will approve exchange agreements on behalf of the PTO. Before proceeding into comprehensive evaluation of a joint endeavor, a preliminary assessment will be made of the merits of the offer. Exchange agreement proposals which are too sketchy or ill-defined to (1) establish the merit in the basic idea, (2) establish that the proposal is in accordance with PTO program objectives, or (3) establish that the proposing organization is willing to make significant contribution to the endeavor, will not be evaluated in depth and will be treated as correspondence or advertising. This preliminary assessment will be conducted by the Administrator for Automation or his or her designee to determine if the proposal warrants further consideration. If this determination is positive and if the parties agree to proceed with a joint endeavor, the Administrator for Automation will enter into detailed discussions and negotiations with the offeror regarding the technical and business aspects of the offer. Upon reaching a mutually satisfactory arrangement, the agreement will be submitted to the Commissioner of Patents and Trademarks for approval. Administration of the exchange agreement program will be performed by the Administrator for Automation.

Due to resource limitations and the necessity for diversity in the program, only one offer will normally be accepted for a given PTO incentive. If substantially similar offers are received within any 45-day period, they will be evaluated and/or negotiated together. The offer which provides the best total consideration for the Government will be accepted. Special consideration shall be given to small and minority businesses, as appropriate.

May 3, 1983. GERALD J. MOSSINGHOFF,
Commissioner of Patents and Trademarks.

[1030 OG 49]

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(118)

Department of Commerce
Patent and Trademark Office
37 CFR Parts 1 and 2
[Docket No. 30719–138]
Attorney Disciplinary Rules

Agency: Patent and Trademark Office, Commerce.

Action: Notice of proposed rulemaking.

Summary: The Patent and Trademark Office proposes to revise the rules of practice in patent and trademark cases, concerning standards of conduct and disciplinary procedures for attorneys and agents recognized to practice before the Office. The present rules do not go into detail as to the obligations arising under the standards of conduct, or as to the procedures for investigating complaints and conducting disciplinary actions. The proposed rules would spell out the obligations of those who practice before the Office, and the procedures for enforcing them, in sufficient detail to better achieve an even-handed regulation of the practice of attorneys and agents before the Office. The proposed rules would also reassign responsibility for administering these rules. However, the proposed rules would not change the current requirements and procedures for gaining recognition to represent applicants or other parties before the Office.

Dates: Comments must be received on or before Sept. 29, 1983; a public hearing will be held Sept. 29, 1983, beginning at 9:00 AM. Requests to present oral testimony should be received by Sept. 22, 1983.

Address: Address written comments to the Commissioner of Patents and Trademarks, Washington, D.C. 20231, marked to the attention of William Feldman. The hearing will be held in Room 11C24 of Bldg. 3, Crystal Plz., located at 2021 Jefferson Davis Hwy., Arlington, Va. Written comments and a transcript of the public hearing will be available for public inspection in Room 11A13 of Bldg. 3, Crystal Plz., 2021 Jefferson Davis Hwy., Arlington, Va.

For Further Information Contact: William Feldman, by telephone at (703) 557-2012 or by mail marked to his attention and addressed as indicated above.

Supplementary Information: This proposed rule change is designed in part to clarify the standards of professional conduct to which attorneys and agents must conform in representing applicants or other parties before the Patent and Trademark Office. Sections 1.344 and 2.13, if amended as proposed, would require attorneys, agents and other persons appearing before the Office in patent and trademark cases, respectively, to conform to the standards of ethical and professional conduct set forth in the American Bar Association's current Code of Professional Responsibility. This change, coupled with the removal of §§1.345 and 2.14 which prohibit advertising, and the addition of §1.349, would make the rules consistent with the decisions of the United States Supreme Court in *Bates* v. *State Bar of Arizona*, 433 U.S. 350 (1977); *Ohralik* v. *Ohio State Bar Association*, 436 U.S. 447 (1978); and *In re Primus*, 436 U.S. 412 (1978).

Additional changes in §§1.344 and 2.13 are proposed

which would specifically prohibit patent agents registered to practice under §§1.341(b) or 1.341(e) and persons recognized to practice under §§2.12(b) or 2.12(c), from holding themselves out to be an attorney, solicitor or lawyer. The prohibition would include all forms of communication since such representation would not only be false, deceptive and misleading but a misrepresentation of the authority granted the individual by virtue of their recognition to represent clients in patent and trademark cases. This prohibition has been added so that nonlawyers bound by a lawyer's code of responsibility will not mistakenly assume they can style themselves as lawyers.

A new §1.349 is proposed to prohibit advertising and solicitation specifically proscribed in 35 U.S.C. 32.

A new §1.360 is proposed to define the Commissioner's authority to conduct disciplinary proceedings.

The addition of a new §1.361 further concerning professional conduct is proposed. This proposed new section defines by means of a non-exclusive listing, conduct which is considered *prima facie* disreputable and would result in suspension or exclusion from practice. The purpose of this section is to augment §§1.344 and 2.13 which require adherence to the standards of ethical and professional conduct set forth in the Code of Professional Responsibility of the American Bar Association.

New §1.362 is proposed to replace §1.348(a). This section provides for a Director of Enrollment and Discipline. Under §1.362(b) the Director is assigned the responsiblity previously assigned to the Solicitor for conducting investigations, preparing charges, collecting and presenting testimony, and presenting cases for suspension or exclusion from practice of attorneys and registered agents admitted to practice before the Office. Establishing the position of Director of Enrollment and discipline will provide separation of the discipline function from the duties of the Solicitor and a full time investigative office to which complaints can be specifically directed. Moreover, the Solicitor will be available to counsel the Commissioner on disciplinary matters without conflict of interest problems since the Solicitor will not have been involved in the investigation or presentation of the case for suspension or exclusion.

Proposed §1.363–1.379 would specify in detail the procedures for initiation and conduct of disciplinary proceedings and would replace §1.348(b)–(e). Specifically, §1.363(a) would require disreputable conduct to be reported to the Director of Enrollment and Discipline. Section 1.363(b) would impose a duty on attorneys and registered agents to supply information concerning violation of the regulations to the Director of Enrollment and Discipline. Sections 1.363(c) and 1.364(a) would encourage the Director of Enrollment and Discipline to correspond and confer with a proposed respondent prior to instituting disciplinary proceedings. Section 1.364(b) would allow the Director of Enrollment and Discipline to accept resignations or voluntary suspensions in lieu of instituting disciplinary proceedings.

Proposed §1.363(c) would replace §348(b) and require the Director of Enrollment and Discipline to file a formal complaint to institute disciplinary proceedings. Section 1.365 would require the complaint to be plain and concise, and sets forth a time limit for respondent to file an answer to the complaint. This is not significant departure from existing practice.

Proposed §1.366(a) is new to the rules and would provide methods for serving the complaint and obtaining proof of service. Section 1.366(b) similarly would provide for service of papers other than the complaint and would authorize the Administrative Law Judge or Commissioner to require express mail or hand delivery if warranted.

Proposed §1.367 would replace §1.348(c) and require the respondent to file an answer to the complaint which fully responds to each allegation of the complaint and also states any affirmative defenses. This would not be a significant departure from existing practice.

Proposed §1.367(e) would authorize use of a subpoena under 35 U.S.C. 24 to obtain evidence once an answer to the complaint has been filed.

Proposed §1.370 would provide for the filing of motions. Under this section the moving party would be required to confer with the opposing party and make a good faith effort to resolve the issue raised by the motion before making the motion. This section is new and is designed to expedite disciplinary proceedings by reducing issues.

Proposed §1.372 would replace §1.348(e) and provide for the appointment of an Administrative Law Judge to preside over disciplinary proceedings. Specific responsibilities of the Administrative Law Judge are delineated in §1.372(b). Requiring an Administrative Law Judge to preside over disciplinary proceedings is designed to insure that the presiding official will be competent and experienced in deciding matters such as admissibility of evidence, etc.

Under proposed §1.373, disciplinary hearings would be held in all cases. The hearings would be recorded and transcribed. This section would replace §1.348(d) but would not depart significantly from present practice.

Under proposed §1.374, disciplinary hearings would not be open to the public unless the respondent requests an open hearing and the Director of Enrollment and Discipline does not object. Although the current rules are silent on this point, this is consistent with present practice.

Proposed §1.375 would provide general rules of evidence to be followed in hearings in disciplinary proceedings. Specific guidelines for taking depositions are set forth in proposed §1.376. This section would replace §1.348(d)(3) and specifically set time limits and conditions broadly referenced in the predecessor section.

Under proposed §1.377, specific guidelines for discovery and limitations on discovery are set forth. This section would depart from past practice but is consistent with the Court of Appeals' decision in *Silverman* v. *Commodity Futures Trading Commission*, 549 F. 2d 28 (7th Cir. 1977).

Under proposed §1.378, the parties would have the right to file proposed findings and conclusions and a post-hearing memorandum prior to the initial decision of the Administrative Law Judge.

Under proposed §1.379, the Administrative Law Judge would be required to file a written initial decision in the case within six months from the date the complaint is served. This would be a significant departure from present practice under which no time limit is prescribed for filing the initial decision. This section is designed to expedite disciplinary proceedings.

Under proposed §1.380, either party may appeal the initial decision of the Administrative Law Judge to the Commissioner within thirty days of the initial decision. The Commissioner would make a final decision under proposed §1.381 after allowing the other party thirty days to file a reply brief. As in the past the respondent may seek review of the Commissioner's decision by petitioning the United States District Court for the District of Columbia.

Proposed §1.382(a) and (b) set forth the consequences of suspension or exclusion from practice as they now exist. Under proposed §1.382(c) a further sanction of revocation of privileges would be possible. This sanction is designed to prevent suspended or excluded practitioners from circumventing the disciplinary action taken by the Office. Proposed §1.382(d) would provide for publication of the final order of suspension or exclusion from practice. Such publication is believed necessary to effect the disciplinary sanction under §1.361(f).

Under proposed §1.383 an excluded practitioner may petition for reinstatement after five years. In addition, this section suggests that a further penalty, the costs of the disciplinary proceedings plus interest, may be levied against an excluded or suspended practitioner as a condition for reinstatement.

Under proposed §2.16 attorneys and other persons representing applicants in trademark cases would be held to the same standards of professional conduct as registered attorneys and agents representing applicants

in patent cases. Procedures governing disciplinary proceedings and reinstatement as specifically provided in §§1.362–1.383 would apply as well to trademark practitioners.

Environmental, energy, and other considerations: The proposed rule change will not have a significant impact on the quality of the human environment or the conservation of energy resources.

The proposed rule change is in conformity with requirements of the Regulatory Flexibility Act (Pub. L. 96–354), Executive Order 12291, and the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291. The annual effect on the economy will be less than $100 million. There will be no major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. There will be no significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

This rule change will not impose a burden under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*, since no significant additional record keeping or reporting requirements are placed upon the public.

List of Subjects in 37 CFR Parts 1 and 2

Administrative practice and procedure, Advertising, Courts, Freedom of information, Inventions and patents, Investigations, Lawyers, Legal services, Trademarks.

Notice is hereby given that, pursuant to the authority granted to the Commissioner of Patents and Trademarks by 35 U.S.C. 6, 31 and 32, the Patent and Trademark office proposes to amend Title 37 of the Code of Federal Regulations as set forth below.

It is proposed to amend 37 CFR Parts 1 and 2 as follows with deletions indicated by brackets and additions by arrows.

Part 1—[Amended]

1. Section 1.344 is proposed to be amended by designating the existing paragraph as paragraph (a), revising newly designated paragraph (a) and adding a new paragraph (b) to read as follows:

§1.344 Professional conduct.

►(a)◄ Attorneys and agents appearing before the Patent and Trademark Office must conform to the standards of ethical and professional conduct set forth in the Code of Professional Responsibility of the American Bar Association [as amended Feb. 24, 1970,] insofar as such code is not inconsistent with ►Chapter I of◄ this ►title◄ [part]. A copy of the said code is available for inspection in the Office of the [Solicitor]►Director of Enrollment and Discipline, U.S. Patent and Trademark Office, Room [11C04] ►11E14◄, Bldg. [3]►4◄, Crystal Plz., [2021] Jefferson Davis Hwy., Arlington, Va. Copies of the code are available upon request to the American Bar Center, 1155 E. 60th St., Chicago, Ill. 60637.

►(b) An agent registered to practice under §§1.341(b) or 1.341(e) shall not hold himself or herself out to be an attorney, solicitor or lawyer.◄

2. Section 1.345 is proposed to be removed as follows:

§1.345 [Advertising.]►Reserved.◄

[(a) The use of advertising, circulars, letters, cards, and similar material to solicit patent business, directly or indirectly, is forbidden as unprofessional conduct, and any person engaging in such solicitation, or associated with or employed by others who so solicit, shall be refused recognition to practice before the Patent and Trademark Office or may be suspended, excluded or disbarred from further practice.

(b) The use of simple professional letterheads, calling cards, or office signs, simple announcements necessitated by opening an office, change of association, or change of address, distributed to clients and friends, and insertion of listings in common form (not display) in a classified telephone or city directory, and listings and professional cards with biographical data in standard professional, directories shall not be considered a violation of this rule.

(c) No agent shall, in any material specified in paragraph (b) of this section or in papers filed in the Patent and Trademark Office, represent himself to be an attorney, solicitor or lawyer.]

3. Section 1.348 is proposed to be removed as follows:

§1.348 [Suspension or disbarment proceedings]►Reserved.◄

[Except as otherwise provided, proceedings for suspension, disbarment or exclusion from practice are before a Commissioner.

(a) *Investigating and prosecuting officer.* The duties of investigation, preparing charges, collecting and presenting testimony, and presenting a case for suspension, exclusion from practice or disbarment shall be performed by the Solicitor of the Patent and Trademark Office or, at his direction, by a designated law examiner or other person, and neither the Solicitor nor such law examiner or other person shall participate in any manner in the decision of the case. If, upon investigation of a complaint or other information concerning an attorney or agent, it shall appear to the Solicitor that grounds for suspension, exclusion from practice, or disbarment exist, he shall prepare and forward the necessary notice and statement.

(b) *Notice of proceedings.* Proceedings for suspension or disbarment shall be instituted by the Solicitor by mailing to, or otherwise serving on, the respondent a notice of such proceeding with a statement of the charges against him, at the same time forwarding a copy to the Commissioner. It shall be the duty of the respondent to answer the charges as specified in paragraph (c) of this section.

(c) *Answer.* The respondent's answer shall be filed in writing with the Commissioner within one month from the time the notice is served on the respondent, or within such extension of time as may be allowed by the Commissioner for good cause shown. The answer shall be under oath or declaration. Failure to answer within the time allowed will be taken as an admission of the charges. The respondent in his answer should specifically admit or deny every material allegation of fact in the statement of charges; every allegation not denied shall be deemed admitted, unless the respondent states that he has no knowledge thereof sufficient to form a belief, which statement shall be considered a denial. Any special matters of defense shall be stated affirmatively in the answer. False statements in the answer may be made the basis of supplemental charges.

(d) *Hearing.* (1) Unless the Commissioner finds the answer sufficient to dispose of the charges, he will set the case for hearing before him, notifying the repondent and the Solicitor of the place, day and time of commencement of the hearing. Evidence as to the matters in issue may be submitted at the hearing, the testimony of witnesses being presented orally, under oath and reported.

(2) The hearing may be advanced and continued by the Commissioner as far as may be deemed convenient and proper.

(3) Depositions for use at the hearing in lieu of personal appearance of witnesses may be taken by either the Solicitor or the respondent on application to and with the written consent of the Commissioner within such times and under such conditions as the Commissioner may prescribe.

(e) *Hearing Officer.* The Commissioner may, in his discretion, delegate the conduct of the hearing to a hearing or trial examiner who shall be the presiding officer and who shall make a recommended decision.

(f) *Administrative Procedure Act.* Proceedings shall be governed, in matters not specifically set forth herein, by the provisions of the Administrative Procedure Act, 60 Stat. 237; 5 U.S.C. 1001–1011, which may be applicable.]

4. Section 1.349 is proposed to be added and reads as follows:

►§1.349 Advertising and solicitation.◄

►No attorney or registered agent shall with respect to any prospective business before the Patent and Trademark Office, by word, circular, letter, or advertising, with intent to defraud in any manner, deceive, mislead or threaten any prospective applicant or other person having prospective business before the Office.◄

§1.351 [Redesignated as §1.391]

5. Section 1.351 is proposed to be redesignated as §1.391. The center heading "Amendment of Rules" is transferred to appear above §1.391.

§1.352 [Redesignated as §1.392.]

6. Section 1.352 is proposed to be redesignated as §1.392.

7. Section 1.360 is proposed to be added and reads as follows:

►§1.360 Suspension or exclusion from practice.◄

►The Commissioner, after notice and opportunity for hearing, may suspend or exclude from practice before the Patent and Trademark Office either generally or in any particular case, any person, attorney or registered agent shown to be incompetent, disreputable or guilty of unethical or unprofessional conduct or gross misconduct, or who does not comply with the rules and regulations in Chapter I of this title.◄

8. Section 1.361 is proposed to be added and reads as follows:

►§1.361 Disreputable conduct.◄

►Disreputable conduct for which an attorney or registered agent may be suspended or excluded from practice before the Patent and Trademark Office includes, but is not limited to:

(a) Conviction of any criminal offense under any law of the United State or any state thereof or for any offense involving dishonesty or breach of trust.

(b) Giving false or misleading information, or participating in any way in the giving of false or misleading information, to the Patent and Trademark Office or any employee thereof, or to any tribunal authorized to pass upon matters administered by the Patent and Trademark Office in connection with any matter pending or likely to be pending before them, knowing the information to be false or misleading. Facts or other matters contained in testimony, applications for patents or trademarks, affidavits, declarations, or any other document or statement, written or oral, are included in the term "information."

(c) Misappropriation of, or failure properly and promptly to remit funds received from a client for the purpose of payment of fees to the Commissioner.

(d) Directly or indirectly attempting to influence, or offering or agreeing to attempt to influence, the official action of any employee of the Patent and Trademark Office by the use of threats, false accusations, duress or coercion, by the offer of any special inducement or promise of advantage or by the bestowing of any gift, favor, or thing of value.

(e) Disbarment or suspension from practice as an attorney by any duly constituted authority of any State, Possession, Commonwealth, the District of Columbia, or by any Federal Court.

(f) Knowingly aiding and abetting another person to practice before the Patent and Trademark Office during a period of suspension, exclusion, or ineligibility of the other person. Maintaining a partnership for the practice of law, or other related professional service with a person who is under suspension or exclusion from practice before the Patent and Trademark Office is presumed to be a violation of this provision.

(g) Contemptuous conduct in connection with practice before the Patent and Trademark Office, including the use of abusive language, making false accusations and statements knowing them to be false, or circulating or publishing malicious or libelous matter.

(h) Knowingly withholding from the Patent and Trademark Office information identifying a patent from which a claim(s) has (have) been copied.

(i) Refusing or neglecting to forward correspondence received on behalf of a former client to that client or to notify the Patent and Trademark Office of the inability to forward such correspondence.◄

9. Section 1.362 is proposed to be added and reads as follows:

►§1.362 Director of Enrollment and Discipline.◄

►(a) *Appointment.* The Commission shall appoint a Director of Enrollment and Discipline. In the event of the absence of the Director of Enrollment and Discipline or a vacancy in that office the Commissioner shall designate an employee of the Patent and Trademark Office to act as Director of Enrollment and Discipline.

(b) *Duties.* The Director of Enrollment and Discipline shall: conduct investigations; prepare charges; collect and present testimony and present cases for suspension or exclusion from practice of the attorneys and registered agents admitted to practice before the Patent and Trademark Office. The Director may perform other duties as are necessary and appropriate to carry out the Director's functions under this part or as prescribed by the Commissioner. The Director shall not participate in deciding any case.◄

10. Section 1.363 is proposed to be added and reads as follows:

►§1.363 Initiation of disciplinary proceedings.◄

►(a) *Receipt of information.* If an employee of the Patent and Trademark Office has reason to believe that an attorney or registered agent has violated any of the provisions of this part, the employee shall promptly make a report thereof which will be forwarded to the Director of Enrollment and Discipline. Any other person possessing information concerning violations or disreputable conduct may make a report thereof to the Director of Enrollment and Discipline or to any employee of the Patent and Trademark Office.

(b) *Furnishing information.* It is the duty of an attorney or registered agent who practices before the Patent and Trademark Office, when requested by the Director of Enrollment and Discipline, to provide the Director with any information the person may have concerning violation of the regulations in this part by any other person, and to testify thereto in any proceeding instituted under this part for the suspension or exclusion from practice of an attorney or registered agent, unless the person believes in good faith and on reasonable grounds that that information is privileged or that the request is of doubtful legality.

(c) *Institution of proceeding.* When the Director of Enrollment and Discipline has reason to believe that any attorney or registered agent has violated any provisions of the laws or regulations governing practice before the Patent and Trademark Office, the Director may reprimand the person to institute a disciplinary proceeding for the suspension or exclusion from practice of that person. The proceeding will be instituted by a complaint which names the respondent and is signed by the Director of Enrollment and Discipline and filed in the Director's office. Except in cases of willfulness, or when time, the nature of the proceeding, or the public interest does not permit, the Director of Enrollment and Discipline may not institute a proceeding until the Director has called to the attention of the proposed respondent, in writing, facts or conduct which warrant institution of a proceeding, and has accorded the proposed respondent the opportunity to demonstrate or achieve compliance with all lawful requirements. An Administrative Law Judge will be appointed at the time the complaint is filed. A copy of the complaint will be given to the Administrative Law Judge.◄

11. Section 1.364 is proposed to be added and reads as follows:

►§1.364 Conferences.◄

►(a) *General.* The Director of Enrollment and discipline may confer with an attorney or registered agent concerning allegations of misconduct whether or not a proceeding for suspension or exclusion from practice has been instituted.

(b) *Resignation or voluntary suspension.* An attorney or registered agent may avoid the institution or conclusion of a suspension or exclusion proceeding by offering his or her consent to suspension from practice before the Patent and Trademark Office. A registered agent may also offer a resignation. The Director of Enrollment and Discipline, at his or her discretion, may accept the offered resignation of a registered agent and may suspend an attorney or registered agent in accordance with the consent offered. Revocation of the privilege of using the Public Search Room and other facilities of the Patent and Trademark Office to perform work on behalf of others may be a condition of suspension or acceptance of resignation.◄

12. Section 1.365 is proposed to be added and reads as follows:

►1.365 Contents of complaint◄

►(a) *Charges.* A complaint will give a plain and concise description of the allegations which constitute the basis for the proceeding. A complaint will be deemed sufficient if it fairly informs the respondent of the charges so that respondent is able to prepare a defense.

(b) *Demand for answer.* The complaint will state the place and time for filing an answer by the respondent. The time will be not less than fifteen (15), and not more than thirty (30), calendar days from the date of service of the complaint. Notice will be given that a decision by default may be rendered against the respondent if the complaint is not answered as required.◄

13. Section 1.366 is proposed to be added and reads as follows:

►§1.366 Service of complaint and other papers.◄

►(a) *Complaint.* A copy of the complaint may be served upon the respondent by certified mail or by first-class mail sent to respondent's last address known to the Director of Enrollment and Discipline. The copy of the complaint may be delivered to the respondent or the respondent's attorney of record either in person or by leaving it at the Office of the respondent, or attorney, or the complaint may be delivered in any manner which has been agreed to by the respondent. If service is by certified mail, the post office receipt signed by or on behalf of the respondent will be proof of service. If the certified mail is not claimed or accepted by the respondent and is returned undelivered, complete service may be made upon the respondent by mailing the complaint to respondent by first-class mail, addressed to the respondent at the address on file with the Committee on Enrollment or at last known address known to the Director of Enrollment and Discipline. If service is made upon the respondent or the respondent's attorney in person, or by leaving the complaint at the office of the respondent, or attorney, the verified return by the person making service, setting forth the manner of service, will be proof of service. If respondent is a registered agent or attorney a letter pursuant to §1.347 may be sent with the complaint. Respondent shall respond to said letter within fifteen (15) days from the date of the letter and such response shall constitute proof of service.

(b) *Service of other papers.* Any paper other than the complaint may be served upon an attorney or registered agent as provided in paragraph (a) of this section, or by mailing the paper by first-class mail to the respondent's attorney of record or if respondent is not represented by an attorney by mailing the paper by first-class mail to the respondent at the address on file with the Committee on Enrollment or at the last address known to the Director of Enrollment and Discipline. This mailing will constitute complete service. The Administrative Law Judge or Commissioner may require that service of papers be made by express mail or hand delivery.

(c) *Filing of papers.* When the filing of a paper is required or permitted in connection with a disciplinary proceeding, and the place of filing is not specified by this section or by rule or order of the Administrative Law Judge or by direction of the Director of Enrollment and Discipline, the papers should be filed with the Director of Enrollment and Discipline, Patent and Trademark Office, Washington, D.C. 20231. All papers will be filed in duplicate.◄

14. Section 1.367 is proposed to be added and reads as follows:

►§1.367 Answer.◄

►(a) *Filing.* The respondent shall file an answer in writing with the Administrative Law Judge within the time specified in the complaint or notice of institution of the proceeding, unless, on application, the time is extended by the Director of Enrollment and Discipline or the Administrative Law Judge. A copy of the answer shall be served on the Director of Enrollment and Discipline.

(b) *Content.* The respondent shall include in the answer a statement of facts which constitute the grounds of defense, and shall specifically admit or deny each allegation set forth in the complaint, except that the respondent shall not deny a material allegation in the complaint which respondent knows to be true, or state that respondent is without sufficient information to form a belief when in fact the respondent possesses that information. The respondent shall also state affirmatively special matters of defense.

(c) *Failure to deny or answer allegations in the complaint.* Every allegation in the complaint which is not denied in the answer is deemed to be admitted and may be considered proven, and no further evidence in respect of that allegation need be adduced at a hearing. Failure to file an answer within the time prescribed in the notice to the respondent, except as the time for answer is extended by the Director of Enrollment and Discipline or the Administrative Law Judge, will constitute an admission of the allegations of the complaint and a waiver of hearing, and the Administrative Law Judge may render a decision by default without a hearing or further procedure.

(d) *Reply by Director of Enrollment and Discipline.* No reply to the respondent's answer is required, and new matter in the answer shall be deemed to be denied, but the Director of Enrollment and discipline may file a reply at the Director of Enrollment and Discipline may file a reply at the Director's discretion or at the request of the Administrative Law Judge.

(e) *Contested Case.* Upon the filing of an answer by respondent the proceeding shall be regarded as a contested case within the meaning of 35 U.S.C. 24. Evidence obtained by subpoena shall not be admitted into the record or considered unless the subpoena was previously authorized by the Administrative Law Judge.◄

15. Section 1.368 is proposed to be added and reads as follows:

►§1.368 Supplemental charges.◄

►If it appears that the respondent's answer, falsely and in bad faith, denies a material allegation of fact in the complaint or states that the respondent has no knowledge or information sufficient to form a belief, when respondent in fact possesses knowledge or that information, or if it appears that the respondent has knowingly introduced false testimony during proceedings for respondent's suspension or exclusion from practice the Director of Enrollment and Discipline may file supplemental charges against the respondent. These supplemental charges may be tried with other charges in the case, provided the respondent is given notice and is afforded an opportunity to prepare a defense to them.◄

16. Section 1.369 is proposed to be added and reads as follows:

►§1.369 Proof; variance; amendment of pleading.◄

►In case of a variance between the evidence and the allegations in a pleading, the Administrative Law Judge may order or authorize amendment of the pleading to conform to the evidence. The party who would otherwise be prejudiced by the amendment will be given reasonable opportunity to meet the allegation of the pleading as amended, and the Administrative Law Judge shall make findings on an issue presented by the pleadings as so amended.◄

17. Section 1.370 is proposed to be added and reads as follows:

►§1.370 Motions.◄

►Motions may be filed with the Administrative Law Judge. The Administrative Law Judge will determine on a case-by-case basis the time period for response to a motion. No motion will be considered by the Administrative Law Judge unless such motion is supported by a written statement by the moving party that the moving party or attorney for the moving party has conferred with the opposing party or attorney for the opposing party in an effort in good faith to resolve by agreement the issues raised by the motion and has been unable to reach agreement. If issues raised by the motion are subsequently resolved between the parties the moving party should advise the Administrative Law Judge in writing of the matters in the motion which no longer require a decision.◄

18. Section 1.371 is proposed to be added and reads as follows:

►§1.371 Representation◄

►A respondent or proposed respondent may appear in person or be represented by an attorney who need not be registered to practice before the Patent and Trademark Office. The Director of Enrollment and Discipline may be represented by an attorney or other employee of the Patent and Trademark Office.◄

19. Section 1.372 is proposed to be added and reads as follows:

►§1.372 Administrative Law Judge.◄

►(a) *Appointment.* An Administrative Law Judge, appointed as provided by 5 U.S.C. 3105, shall conduct disciplinary proceedings.

(b) *Responsibilities.* The Administrative Law Judge shall have authority to:

(1) Administer oaths and affirmations;

(2) Make rulings upon motions and requests; these rulings may not be appealed prior to the close of the hearing except at the discretion of the Administrative Law Judge or the Commissioner in extraordinary circumstances;

(3) Rule upon offers of proof, receive relevant evidence, and examine witnesses;

(4) Take or authorize the taking of depositions;

(5) Determine the time and place of hearing and regulate its course and conduct;

(6) Hold or provide for the holding of conferences to settle or simplify the issues by consent of the parties;

(7) Receive and consider oral or written arguments on facts or law;

(8) Make initial decisions;

(9) Adopt procedures and modify them from time to time as occasion requires for the orderly disposition of proceedings; and

(10) Perform acts and take measures as necessary to promote the efficient and timely conduct of any proceeding.◄

20. Section 1.373 is proposed to be added and reads as follows:

►§1.373 Hearings.◄

►(a) *Conduct.* The Administrative Law Judge shall preside at hearings in disciplinary proceedings. Hearings will be stenographically recorded and transcribed and the testimony of witnesses will be received under oath or affirmation. The Administrative Law Judge shall conduct hearings in accordance with 5 U.S.C. 556. A copy of the transcript of the hearing shall become part of the record. A copy of the transcript shall be provided to the Director of Enrollment and Discipline and the respondent.

(b) *Failure to appear.* If either party to a disciplinary proceeding fails to appear at the hearing, after notice has been sent, the Administrative Law Judge may deem the absent party to have waived the right to a hearing and may make a decision against the absent party by default.◄

21. Section 1.374 is proposed to be added and reads as follows:

►§1.374 Hearings and records.◄

►A hearing in a disciplinary proceeding will not be open to the public except that the Director of Enrollment and Discipline may grant a request by a respondent to open his or her hearing to the public and make the record of the proceeding available for public inspection provided agreement is reached by stipulation in advance to exclude from public disclosure information which is privileged or confidential under applicable laws and regulations. However, if the hearing results in disciplinary action against an attorney or registered agent, the record of the proceeding will be available for public inspection.◄

22. Section 1.375 is proposed to be added and reads as follows:

►§1.375 Evidence.◄

►(a) *Rules of evidence.* The rules of evidence prevailing in courts of law and equity are not controlling in hearings in disciplinary proceedings. However, the Administrative Law Judge shall exclude evidence which is irrelevant, immaterial, or unduly repetitious.

(b) *Depositions.* Depositions of witnesses taken pursuant to §1.376 may be admitted as evidence.

(c) *Government documents.* Official documents, records, and papers of the Patent and Trademark Office are admissable in evidence without extrinsic evidence of authenticity. These documents, records and papers may be evidenced by a copy certified as correct by an employee of the Patent and Trademark Office.

(d) *Exhibits.* If any document, record, or other paper is introduced in evidence as an exhibit, the Administrative Law Judge may authorize the withdrawal of the exhibit subject to any conditions the Administrative Law Judge deems appropriate.

(e) *Objections.* Objections to evidence will be in short form, stating the grounds of objection and the record may not include arguments thereon, except as ordered by the Administrative Law Judge. Rulings on objections will be a part of the record. No exception to the ruling is necessary to preserve the rights of the parties.◄

23. Section 1.376 is proposed to be added and reads as follows:

►§1.376 Depositions.◄

►Depositions for use at a hearing may, with the approval of the Administrative Law Judge, be taken by either the Director of Enrollment and Discipline or the respondent or their authorized representatives. Depositions may be taken upon oral or written questions, upon not less than ten (10) days written notice to the other party, before any officer authorized to administer an oath for general purposes or before an employee of the Patent and Trademark Office authorized to administer an oath. The written notice will state the names of the witnesses and the time and place where the depositions are to be taken. The requirement of ten (10) days notice may be waived by the parties in writing, and depositions may then be taken from the persons and at the times and places mutually agreed to by the parties. When a deposition is taken upon written questions, any cross-examination will be served upon written questions. Copies of the written questions will be upon the other party with the notice, and copies of any written cross-interrogatories will be mailed or delivered to the opposing party at least five (5) days before the date of taking the deposition, unless the parties mutually agree otherwise. A party on whose behalf a deposition is taken must file a transcript thereof with the Administrative Law Judge and serve one copy upon the opposing party. Expenses in the reproduction of depositions will be borne by the party at whose instance the deposition is taken.◄

24. Section 1.377 is proposed to be added and reads as follows:

►§1.377 Discovery.◄

►Discovery shall not be authorized except as follows:

(1) The Administrative Law Judge may require

parties to file and serve, prior to any hearing, a pre-hearing statement which contains

(a) A list (together with a copy) of all proposed exhibits to be used in connection with a party's case-in-chief,

(b) a list of proposed witnesses,

(c) the identity of government employees who have investigated the case and,

(d) copies of memoranda reflecting respondent's own statements to administrative representatives;

(2) After a witness testifies for a party, if the opposition requests, the party may be required to produce, prior to cross-examination, any written statement made by the witness;

(3) Requests for admissions, filed within such time as may be authorized by the Administrative Law Judge, which are to be admitted or denied and if denied a brief reason given for denial.◄

25. Section 1.378 is proposed to be added and reads as follows:

►§1.378 Proposed findings and conclusions.◄

►Except in cases when the respondent has failed to answer the complaint, or when a party has failed to appear at the hearing, the Administrative Law Judge, prior to making an initial decision, shall afford the parties a reasonable opportunity to submit proposed findings and conclusions and a post-hearing memorandum in support of the proposed findings and conclusions.◄

26. Section 1.379 is proposed to be added and reads as follows:

►§1.379 Decision of Administrative Law Judge.◄

►Within six (6) months from the date charges are served, the Administrative Law Judge shall make an initial decision in the case. The decision will include (a) a statement of findings and conclusions, as well as the reasons or basis therefor, upon all the material issues of fact, law, or discretion presented on the record, and (b) an order of suspension, exclusion from practice or reprimand or an order of dismissal of the complaint. The Administrative Law Judge shall file the decision with the Director of Enrollment and Discipline and shall transmit a copy to the respondent or the respondent's attorney of record. In the absence of an appeal to the Commissioner or review of the decision upon motion of the Commission, the decision of the Administrative Law Judge will, without further proceedings, become the decision of the Commissioner of Patents and Trademarks thirty (30) days from the date of the decision of the Administrative Law Judge.◄

27. Section 1.380 is proposed to be added and reads as follows:

►§1.380 Appeal to the Commissioner◄

►Within thirty (30) days from the date of the intial decision of the Administrative Law Judge, either party may appeal to the Commissioner. An appeal by the respondent will be filed with the Director of Enrollment and Discipline in duplicate and will include exceptions to the decision of the Administrative Law Judge and supporting reasons for those exceptions. If the Director of Enrollment and Discipline files the appeal, the Director shall transmit a copy of it to the respondent. Within thirty (30) days after receipt of an appeal or copy thereof, the other party may file a reply brief in duplicate with the Director of Enrollment and Discipline. If the Director files the reply brief, the Director shall transmit a copy of it to the respondent. Upon the filing of an appeal and a reply brief, if any, the Director of Enrollment and Discipline shall transmit the entire record to the Commissioner.◄

28. Section 1.381 is proposed to be added and reads as follows:

►§1.381 Decision of the Commission.◄

►On appeal from or review of the initial decision of the Administrative Law Judge, the Commissioner shall make a final decision. In making this decision, the Commissioner shall review the record or those portions of the records as may be cited by the parties in order to limit the issues. The Director of Enrollment and Discipline shall transmit a copy of the Commissioner's decision to the respondent. Review of the Commissioner's action may be had by petition to the United States District Court for the District of Columbia.◄

29. Section 1.382 is proposed to be added and reads as follows:

►§1.382 Effect of suspension or exclusion.◄

►(a) *Exclusion.* If the final order against the respondent is for exclusion from practice, the respondent will not thereafter be permitted to practice before the Patent and Trademark Office in patent and trademark cases unless authorized to do so by the Committee on Enrollment or the Commissioner.

(b) *Suspension.* If the final order against the respondent is for suspension, the respondent will not thereafter be permitted to practice before the Patent and Trademark Office in patent and trademark cases during the period of suspension.

(c) *Revocation of privileges.* Revocation of the privilege of using the Public Search Room and other facilities of the Patent and Trademark Office, for work to be performed on behalf of others may be a condition of suspension or exclusion from practice.

(d) *Notice of suspension or exclusion.* Upon the issuance of a final order for suspension or exclusion from practice, the Director of Enrollment and Discipline shall give notice of the order to appropriate employees of the Patent and Trademark Office and to interested departments and agencies of the Federal Government. The Director of Enrollment and Discipline may also give notice to the proper authorities of the State in which, and any Courts before which, the suspended or excluded person is licensed to practice as an attorney.◄

30. Section 1.383 is proposed to be added and reads as follows:

►§1.383 Petition for reinstatement.◄

►The Committee on Enrollment may entertain a petition for reinstatement from any person excluded from practice before the Patent and Trademark Office after the expiration of five (5) years following exclusion. The Committee on Enrollment may grant reinstatement if it is satisfied that the petitioner will conduct himself or herself in accordance with these regulations, and that granting reinstatement would not be contrary to the public interest. In issuing a final order, the Commissioner may impose as a condition for reinstatement that the person seeking reinstatement pay all or a portion of the costs and expenses of the proceedings which led to suspension or exclusion, plus interest thereon from the date of suspension.◄

31. Section 1.384 is proposed to be added and reads as follows:

►§1.384 Saving clause.◄

►A proceeding for suspension or exclusion based on conduct engaged in prior to the effective date of these regulations may be instituted subsequent to such effective date, if such conduct would continue to justify suspension or exclusion under the provisions of these revised regulations.◄

32. Section 1.385 is proposed be added and reads as follows:

►§1.385 Special orders.◄

►The Commissioner reserves the power to issue such special orders as he may deem proper in any disciplinary proceedings.◄

Part 2—[Amended]

33. Section 2.13 is proposed to be amended by designating the existing paragraph as paragraph (a), revising newly designated paragraph (a) and adding new paragraph (b) to read as follows:

§2.13 Professional conduct

►(a)◄ Attorneys and other persons appearing before the Patent and Trademark Office in trademark cases must conform to the standards of ethical and professional conduct set forth in the Code of Professional Responsibility of the American Bar Association [as amended Feb.

24, 1970,] insofar as such code is not inconsistent with this part. A copy of the said code is available for inspection in the Office of the [Solicitor]►Director of Enrollment and Discipline◄ , U.S. Patent and Trademark Office, Room [11C04]►11E14◄ , Bldg. [3] ►4◄ , Crystal Plz., [2021] Jefferson Davis Hwy. Arlington, Va. Copies of the code are available upon request to the American Bar Center, 1155 E. 60th St., Chicago, Ill. 60637.

►(b) Any person recognized to practice under §§2.12(b) and 2.12(c) is required to conform to the standards set forth in said Code of Professional Responsibility, and such person shall not hold himself or herself out to be an attorney, solicitor or lawyer.◄

34. Section 2.14 is proposed to be removed as follows:

§2.14 [Advertising]►Reserved.◄

[(a) The use of display advertising, circulars, letters, cards, and similar material to solicit trademark business, directly or indirectly, is forbidden as unprofessional conduct, and any person engaging in such solicitation, or associated with or employed by others who so solicit, shall be refused recognition to practice before the Patent and Trademark Office or suspended or excluded from further practice.

(b) The use of simple professional letterheads, calling cards, or office signs; simple announcements necessitated by opening an office, change of associations, or change of address, distributed to clients and friends, and insertion of professional cards, listings in common form (not display) in a classified telephone or city directory, and listings and professional cards with biographical data in standard professional directories are not prohibited.

(c) No person not an attorney, solicitor or lawyer shall, in any material specified in paragraph (b) of this section or in papers filed in the Patent and Trademark Office represent himself to be an attorney, solicitor or lawyer.]

35. Section 2.16 is proposed to be revised to read as follows:

§2.16 Suspension or exclusion from practice.

The Commissioner of Patents and Trademarks may, after notice and opportunity for a hearing, suspend or exclude, either generally or in any particular case, from further practice before the Patent and Trademark Office, any person, attorney, or agent shown to be incompetent or disreputable, or guilty of unethical or unprofessional conduct or gross misconduct, or who refuses to comply with the rules and regulations ►as provided in §§1.349, 1.361 and otherwise in part 1 or this part.◄ [or who shall, with intent to defraud in any manner, deceive, mislead, or threaten any applicant or prospective applicant or other person having immediate or prospective business before the Patent and Trademark Office by word, circular, letter, or in any other manner.] The reasons for any such suspension or exclusion shall be duly recorded. Proceedings for suspension. [disbarment] or exclusion from practice are conducted as provided ►in § §1.362–1.383.◄ [§1.348. (See 35 U.S.C. 1958, sec. 32 for review of the Commissioner's action by the United States District Court for the District of Columbia.)]

July 15, 1983.

GERALD J. MOSSINGHOFF,
Commissioner of Patents and Trademarks.

[FR Doc. 83-21917 Filed 8-10-83; 8:45 am]
BILLING CODE 3510-16-M

[1034 OG 39]
[Pending—no final action taken]

(119) **Patent Cooperation Treaty (PCT) Update**

I. Accession to the Patent Cooperation Treaty (PCT) by Mauritania and Listing of PCT Member Countries.

The Patent and Trademark Office has received notification from the World Intellectual Property Organization (WIPO) that Mauritania deposited its instrument of accession to the PCT on January 13, 1983. Therefore, according to PCT Article 63(2), Mauritani may be designated in international applications filed on and after April 13, 1983.

Listing of PCT Member Countries

Country	Ratification or Accession	Date of Ratification or Accession	Date from which Country may be Designated
(1) Central African Republic*	Accession	15 September 1971	01 June 1978
(2) Senegal*	Ratification	08 March 1972	01 June 1978
(3) Madagascar	Ratification	27 March 1972	01 June 1978
(4) Malawi	Accession	16 May 1972	01 June 1978
(5) Cameroon*	Accession	15 March 1973	01 June 1978
(6) Chad*	Accession	12 February 1974	01 June 1978
(7) Togo*	Ratification	28 January 1975	01 June 1978
(8) Gabon*	Accession	06 March 1975	01 June 1978
(9) United States of America	Ratification	26 November 1975	01 June 1978
(10) Germany, Federal Republic of**	Ratification	19 July 1976	01 June 1978
(11) Congo*	Accession	08 August 1977	01 June 1978
(12) Switzerland**	Ratification	14 September 1977	01 June 1978
(13) United Kingdom**	Ratification	24 October 1977	01 June 1978
(14) France**	Ratification	25 November 1977	01 June 1978
(15) Soviet Union	Ratification	29 December 1977	01 June 1978
(16) Brazil	Ratification	09 January 1978	01 June 1978
(17) Luxembourg**	Ratification	31 January 1978	01 June 1978
(18) Sweden**	Ratification	17 February 1978	01 June 1978
(19) Japan	Ratification	01 July 1978	01 October 1978
(20) Denmark	Ratification	01 September 1978	01 December 1978
(21) Austria**	Ratification	23 January 1979	23 April 1979
(22) Monaco	Ratification	22 March 1979	22 June 1979
(23) Netherlands**	Ratification	10 April 1979	10 July 1979
(24) Romania	Accession	23 April 1979	23 July 1979
(25) Norway	Ratification	01 October 1979	01 January 1980
(26) Liechtenstein**	Accession	19 December 1979	19 March 1980
(27) Australia	Accession	31 December 1979	31 March 1980
(28) Hungary	Ratification	27 March 1980	27 June 1980
(29) Democratic People's Republic of Korea (North Korea)	Accession	08 April 1980	08 July 1980
(30) Finland	Ratification	01 July 1980	01 October 1980
(31) Belgium**	Ratification	14 September 1981	14 December 1981
(32) Sri Lanka	Accession	26 November 1981	26 February 1982
(33) Mauritania*	Accession	13 January 1983	13 April 1983

*Members of African Intellectual Property Organization (OAPI) regional patent system. Only regional patent protection is available for OAPI member countries. A designation of any country is an indication that all OAPI countries have been designated. Note: Only one designation fee is due regardless of the number of OAPI member countries designated.

**Members of European Patent Convention (EPC) regional patent system. Either national patents or European patents for member countries are available through PCT, except for France and Belgium, for which only European patents are available if PCT is used. Note: Only one PCT designation fee is due if European regional patent protection is sought for one, several or all EPC member countries.

II. Change in International Fees Effective January 1, 1984

On October 4, 1983 the PCT Assembly in its tenth session (4th Ordinary) held in Geneva, Switzerland, fixed U.S. dollar amounts for the changed international fees that are set in Swiss francs in the Schedule of Fees annexed to the PCT Regulations.

Effective January 1, 1984, for U.S. applicants filing PCT international applications in the United States Receiving Office, the amounts of the international fees are:

Basic Fee (first 30 pages)	$295.00
Basic Supplemental Fee (each page over 30)	$6.00
Designation fee (per country or region)	$70.00

The Transmittal and Search Fees remain unchanged:

Transmittal Fee	$ 125.00
Search Fee	
For the U.S. Patent and Trademark Office as Searching Authority:	
No prior corresponding U.S. application	$500.00
Prior corresponding U.S. application	$250.00
Supplemental Search Fee for each additional invention	$125.00
For the European Patent Office (EPO) as Searching Authority	
Search Fee for each application	$670.00
Supplemental Search Fee for each additional invention	payable directly to the EPO.

A listing of current PCT fees appears in each issue of the *Official Gazette.*

Nov. 14, 1983.

GERALD J. MOSSINGHOFF,
Commissioner of Patents and Trademarks.

(120) **Reduction of European Search Fee for PCT Cases**

The following letter dated December 21, 1979 from Dr. J. B. Van Benthem, the President of the European Patent Office, was received by the Commissioner of Patents and Trademarks and is being published to provide the information to applicants using the Patent Cooperation Treaty (PCT). The effect of the decision of the Administration Council of the European Patent Organization is to reduce the search fee required by the European Patent Office by 20% if the application was filed under the PCT and was searched by the United States Patent and Trademark Office acting as an International Searching Authority.

The letter and accompanying annex are reproduced below.

SIDNEY A. DIAMOND,
Commissioner of Patents and Trademarks.

"Dear Mr. Diamond:

Pursuant to Article 157, paragraph 3, EPC, the Administrative Council of the European Patent Organization is entitled to decide under what conditions and to what extent:

a) the supplementary European search report under Article 157, paragraph 2a, EPC is to be dispensed with

b) the search fee as provided for in Article 157, paragraph 2b, EPC is to be reduced.

Up to the present, the Administrative Council of the EPO has taken decisions in regard to Article 157, paragraph 3, in respect of international applications for which the international search report has been drawn up by the following Offices: the European Patent Office, the Swedish Patent Office, the Austrian Patent Office, the United States Patent and Trademark Office, the Japanese Patent Office and the USSR State Committee for Inventions and Discoveries.

The decisions concerning the Swedish and Austrian Patent Offices are based on the agreements concluded between these Offices and the EPO pursuant to Section III, paragraph 2 and Section IV, paragraph 2 of the Protocol on the Centralisation of the European Patent System, which is an integral part of the EPC. These agreements prescribe that the searches to be carried out by these Offices are to meet the same criteria and be of the same standard as applied at the EPO.

For these reasons the Administrative Council has decided that in respect of Sweden and Austria the supplementary European search report under Article 157, paragraph 2a, EPC is to be dispensed with and a search fee as provided for in Article 157, paragraph 2b, EPC shall not be charged.

As far as those States are concerned which are not members of the European Patent Organization, the Administrative Council of the EPO decided on 14 September 1979, that the search fee provided for in Article 157, paragraph 2b, EPC, shall be reduced by one-fifth in the case of international applications on which an international search report has been drawn up by the United States Patent and Trademark Office, the Japanese Patent Office or the USSR State Committee for Inventions and Discoveries. This reduction reflects the economy expected to be made in drawing up the supplementary European search report according to EPO standards.

Annexed you will find a copy of the Decision of 14 Sept. 1979. It applies to all international applications filed since 1 June 1979.

Yours sincerely,

J. B. Van Benthem.
(President)."

ANNEX

The Administrative Council of the European Patent Organization

Having regard to the European Patent Convention (hereinafter called "the Convention"), and in particular Article 157, paragraph 3, thereof, Has decided as follows:

Article 1

The search fee provided for in Article 157, paragraph 2(b), of the Convention shall be reduced by one fifth in the case of international applications on which an international search report has been drawn up by the United States Patent and Trademark Office, the Japanese Patent Office or the USSR State Committee for Inventions and Discoveries.

Article 2

This decision shall enter into force on 14 September 1979. It shall apply to all international applications filed since 1 June 1978.

Done at Berlin, 14 Sept. 1979.

For the Administrative Council
The Chairman,
G. VIANES.

END OF ANNEX

[992 O.G. 2]

TRADEMARK NOTICES

(121) Interviews Involving Trademark Application

Interviews frequently result in a better understanding of the issues involved, shorten the prosecution and facilitate disposal of applications.

Interviews for discussion of registrability of the mark of a pending application will not be had before the first official Office action thereon and ordinarily not before filing the first response. Arrangements for an interview should be made in advance so that the Examiner may review the case and be familiar with the details involved.

Interviews on Friday will no longer be prohibited as a matter of policy but all interviews should be set at a time satisfactory to all parties concerned.

A memorandum summarizing the conclusions reached at the interview should be prepared by the Examiner and placed in the application file. The memorandum will be retained in the application file until the prosecution is completed. Such procedure will not, however, relieve the applicant of the responsibility of complying with the requirements of Trademark Rule 2.62.

HORACE B. FAY, JR.,
July 6, 1964. *Assistant Commissioner.*

This supersedes the notice of Feb. 10, 1958, 728 O.G. (TM 1).

[804 O.G. TM 147]

(122) Powers of Attorney in Registered Trademark Files

On and after Feb. 1, 1967, communications advising of changes in the powers of attorney for registered trademarks will be placed in the registration files, but will not be acknowledged by the Patent Office. The information will thus be available to those who inspect the files, but since these powers of attorney do not directly concern the Patent Office, acknowledgments are not believed to be necessary.

C.M. WENDT,
Jan. 30, 1967. *Director.*

(123) Request for Extension of Time in which to Oppose

The Patent Office is adopting a new procedure to be used when filing a request for an extension of time in which to oppose under Section 13 of the Trademark Act and Rule 2.102, Trademark Rules of Practice. All requests for extension of time should be submitted in triplicate. The Patent Office will stamp each copy of the request with the action taken and send a copy to the requester and the applicant. The third copy will be entered in the file.

The purpose of this new procedure is to expedite the handling of extensions of time by eliminating the preparation of a formal notice of the disposition of the request. Further, this procedure will provide the applicant with additional information concerning the potential opposition.

WILLIAM E. SCHUYLER, Jr.,
June 16, 1971. *Commissioner of Patents.*

Published in 36 F.R. 13232; July 16, 1971

[889 O.G. TM 3]

(124) DEPARTMENT OF COMMERCE
Patent and Trademark Office
37 CFR Part 2

[Docket No. 2816-154]

Trademark Applications, Filing Dates

Agency: Patent and Trademark Office, Commerce.

Action: Final rule.

Summary: This document amends the rules of practice in trademark cases. The amendments are needed to reduce both the special handling required to process and control applications not entitled to a filing date and the delays such handling imposes on other applications. The amendments clarify the requirements for an application and allow the Office to return applications that fail to meet these requirements. The amendments also define with greater specificity the nature of the drawing and specimens which must accompany an application in order for it to be entitled to a filing date.

Effective Date: Oct. 4, 1982.

For Further Information Contact: Alan B. Davidson by telephone at (703) 557-3916, or by mail marked to his attention and addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Supplementary Information: A notice of proposed rulemaking concerning the amendment of 37 CFR 2.21, 2.52, 2.54, and 2.57 and the deletion of §2.55 was published in the Federal Register on Oct. 7, 1981 (46 FR 49602). Interested parties were requested to submit written comments on or before Jan. 5, 1982. Comments were received from thirteen individuals and organizations and were given careful consideration.

One commenter suggested that the final sentence of §2.54, providing for correction of drawings by the Office, should not be deleted. The individual reasoned that minor alterations are more expeditiously handled by sending the drawing to the Office draftsman rather than returning it to the applicant. The administrative overhead of such a procedure was thought to be more costly than the correction process. This suggestion has not been adopted. Under the existing practice, simple deletions from drawings are made by Examiners and clerical personnel using gummed labels and opaque correction fluid. Due to the lack of facilities, drawings have not been sent to the Drafting Branch for correction for two years.

One commenter questioned whether the proposed revision of paragraph (d) of §2.52 required a date of first use for applications filed under the provisions of Section 44 of the Lanham Act. The revision was not intended to extend the use date requirement to such applications. Paragraph (d) has been reworded to eliminate any possible confusion.

Three commenters expressed unequivocal support for the proposed amendments. While two other commenters found them to be beneficial both to the Office and to applicants, they expressed some concern as to how the new practice will be implemented. One asked about the availability of proof of the initial date of filing should the papers be improperly returned by the Office. The other directed attention to the possibility that a self-addressed postcard, often submitted by an applicant, would be sent back bearing a mail date stamp and a serial number, and the application papers would be returned subsequently as incomplete.

The procedures that have been developed to implement the proposed changes should eliminate both of these concerns. All papers which constitute an application will be date stamped in the Mail Room prior to a review of their completeness. If an application fails to meet the requirements for receiving a filing date, a second stamp will be added to indicate that the papers are informal. A notation will also be placed on the application to indicate the nature of the omission that resulted in denying a filing date. Should the initial determination prove to be erroneous, reinstating the filing date should be a simple matter. Only applications deemed to be sufficient to receive a filing date will reach the processing stage at which a serial number is assigned and the postcard returned. Hence, there should be no instances in which the papers are returned but the self-addressed postcard indicates they are accepted.

One commenter recommended further revisions to §§2.21(a)(6) and 2.52(d). The individual thought an application based on Sections 44(d) or 44(e) of the Lanham Act should be required to include complete information

on the foreign application or registration claimed. In addition, the country of origin, the application or registration number, and relevant dates were suggested as required components of the heading of the drawing. These recommendations have not been adopted. Such information, while helpful, is not essential to the initial examination of an application. Much of the information is available from the certification or certified copy of the foreign registration that must accompany the application papers. While placing Section 44 information on the drawing may be of some convenience, it is not needed in order to perform a normal search. The principal area of concern to commenters involved the revisions of §§ 2.52(d) and 2.21(a)(6) which make the heading on the drawing a requirement for receiving a filing date. The six commenters who addressed themselves to this issue believed the changes placed form over substance and imposed a penalty too severe for a strictly administrative problem. They believed that the potential impact of the new procedure on applicants' substantive rights far outweighed the current inconvenience to the Office. Alternative proposals were advanced for eliminating the problem of clerks interrupting classification work to add or complete headings on drawings. One called for imposing a penalty fee for applications with incomplete drawings. Another would require the Office to hold such applications for a reasonable time while the applicant corrected the deficiency. The original filing date would be awarded once compliance was achieved. One suggestion would allow an application to receive a filing date upon substantial compliance with the drawing requirements.

A survey conducted by the Patent and Trademark Office recently showed additional processing was required to add or complete the headings on the drawings in 14% of all applications. This means remedial action is necessary for approximately 8500 applications annually. Each time an application clerk is required to add or complete the heading on a drawing, processing of other applications is slowed. As a result, the mailing of filing receipts and the filing of copies of the application drawings in the Trademark Search Library cannot be accomplished in the most timely manner.

Inadequate preparation of drawings affects the public as well as the Office. Users of the Trademark Search Room need certain basic information about each new mark in order to identify marks likely to cause confusion with other pending and registered marks. Unless this information is displayed on the drawings, the searcher must attempt to locate the application files, the only alternative source of the information.

The imposition of penalty fees or the establishment of a grace period for correcting deficiencies would not eliminate the potential difficulties for Search Library users. If drawings without complete headings were held pending correction, the search copies of all application drawings received by the Office on a given day would not be filed at the same time in the Search Library. The potential impact on a party making a search could be severe should a conflicting mark bearing a filing date a month or more old appear after a search that should have revealed it has been conducted. For these reasons, the suggestions were not adopted.

One commenter explicitly stated, and others implied, a fear of overzealous enforcement of the amended rules. The Office will make every effort to interpret the rules sensibly. The Office will make every effort to interpret the rules sensibly. For instance, an application will not be denied a filing date because of the absence of a zip code or other non-critical part of an address. No letter-by-letter comparison of an applicant's name appearing on the drawing and in the application will be made. Detailed procedures and guidelines for the Office's clerical personnel should ensure a reasonable and evenhanded approach. The implementation of the rules will be monitored carefully for the first several months.

Environmental and Other Considerations

This rule changes will not have any significant impact on the quality of the human environment or the conservation of energy resources.

These rule changes will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.*) The rule changes will clarify application requirements, simplify existing procedures, and expedite procedings before the Patent and Trademark Office.

The Patent and Trademark Office has determined that these rule changes do not constitute major rules as defined in Section 1(b) of Executive Order 12291 (45 FR 13193), since they would benefit trademark applicants and reduce the burdens on the Office.

These rule changes will not impose a burden under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*, since no significant additional record keeping or reporting requirements are placed on the public.

List of Subjects in 37 CFR Part 2

Administrative practice and procedure, Trademarks.

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Amendment to Regulations

In consideration of the comments received and pursuant to the authority of the Commissioner of Patents and Trademarks under 15 U.S.C. 1123, Part 2 of Title 37, Code of Federal Regulations is amended as set forth below.

1. Section 2.21 is revised to read as follows:

§2.21 Requirements for receiving a filling date.

(a) Materials submitted as an application for registration of a mark will not be accorded a filing date as an application until all of the following elements are received:

(1) Name of the applicant;

(2) A name and address to which communications can be directed;

(3) A drawing of the mark sought to be registered containing the information required by paragraph (d) of §2.52;

(4) An identification of goods or services;

(5) At least one specimen or facsimile of the mark as actually used;

(6) A date of first use of the mark in commerce, or a certification or certified copy of a foreign registration if the application is based on such foreign registration pursuant to section 44(e) of the Trademark Act, or a claim of the benefit of a prior foreign application in accordance with section 44(d) of the Act;

(7) The required filing fee for at least one class of goods or services. Compliance with one or more of the rules relating to the elements specified above may be required before the application is further processed.

(b) The filing date of the application is the date on which all of the elements set forth in paragraph (a) of this section are received in the Patent and Trademark Office.

(c) If the papers and fee submitted as an application do not satisfy all of the requirements specified in paragraph (a) of this section, the papers will not be considered to constitute an application and will not be given a filing date. The Patent and Trademark Office will return the papers and any fee submitted therewith to the person who submitted the papers. The Office will notify the person to whom the papers are returned of the defect or defects which prevented their being considered to be an application.

2. Section 2.52 is amended by revising paragraph (d) to read as follows:

§2.52 Requirement for drawings.

* * * * *

(d) *Heading.* Across the top of the drawing, beginning one inch (2.5 cm.) from the top edge and not exceeding one fourth of the sheet, there must be placed a heading, listing in separate lines, applicant's complete name, applicant's post office address, the dates of first use of the mark and first use of the mark in commerce (except for

an application filed under section 44 of the Trademark Act), and the goods or services recited in the application or a typical item of the goods or services if a number of items are recited in the application. This heading should be typewritten.

* * * * *

3. Section 2.54 is revised to read as follows:

§2.54 Informal drawings.

A drawing not in conformity with §2.51 or paragraphs (a), (b), (c), or (e) of §2.52 or §2.53 may be accepted for purpose of examination, but the drawing must be corrected or a new one furnished, as required, before that mark can be published or the application allowed.

§2.55 [Removed]

4. Section 2.55 is removed.

5. Section 2.57 is revised to read as follows:

§2.57 Facsimiles.

(a) When, due to the mode of applying or affixing the trademark to the goods, or to the manner of using the mark on the goods, or to the nature of the mark, specimens as above stated cannot be furnished, five copies of a suitable photograph or other acceptable reproduction, not to exceed 8-1/2 inches (21.6 cm.) wide and 13 inches (33.0 cm.) long, and clearly and legibly showing the mark and all matter used in connection therewith, shall be furnished.

(b) A purported facsimile which is merely a reproduction of the drawing submitted to comply with §2.51 will not be considered to be a facsimile depicting the mark as actually used on or in connection with the goods or in connection with the services.

GERALD J. MOSSINGHOFF,
Aug. 13, 1982. *Commissioner of Patents and Trademarks.*

[FR Doc. 82-24158 Filed 9-1-82; 9:45 am]
BILLING CODE 3510-16-M

DEPARTMENT OF COMMERCE

(125) **Patent and Trademark Office**

37 CFR Part 2

[Docket No. 30120-11]

Trademark Oppositions; Petitions To Cancel and Affidavits or Declarations Under Section 8 of the Trademark Act

Agency: Patent and Trademark Office, Commerce.

Action: Final rule.

Summary: The Patent and Trademark Office is amending the rules of practice in trademark cases to eliminate the requirement for verification of oppositions and petitions to cancel; to require that additional requests for extension of time to oppose be filed prior to the expiration of an extension; to require that affidavits or declarations filed under Section 8 of the Trademark Act show use of the mark in commerce; and to clarify and revise certain other procedures for oppositions and petitions to cancel. The amendments are necessary to implement certain trademark provisions of Pub. L. 97-247, enacted Aug. 27, 1982, which provisions are effective six months after the date of enactment, and to revise and codify existing practices so as to assist the orderly and prompt resolution of the issues.

Effective Date: Feb. 27, 1983.

For Further Information Contact: As to the rules relating to oppositions and petitions to cancel, Ms. Janet Rice by telephone at (703) 557-3551 or by mail addressed to the Commissioner of Patents and Trademarks. Attention: Ms. Janet Rice, Crystal Sq. 5, Suite 1008, Washington, D.C. 20231. As to the rules relating to affidavits or declarations under Section 8, contact Ms. Paula Hairston by telephone at (703) 557-3882 or by mail addressed to the Commissioner of Patents and Trademarks, Attention: Ms. Paula Hairston, Room CP2-3C-06, Washington, D.C. 20231.

Supplementary Information: Amendments to rules 2.101, 2.102, 1.103, 2.111, and 2.112, among others, were proposed in a rulemaking notice published in the **Federal Register** on June 29, 1982, at 47 FR 28324, the Patent and Trademark Office Official Gazette of July 27, 1982, at 1020 O.G. 25, and Vol. 24 of BNA's Patent, Trademark & Copyright Journal (July 1, 1982) at p. 236. The purpose of these proposed amendments was to revise and codify existing practices. One of the proposed amendments (not adopted herein) was to interchange rules 2.101 and 2.102. Interested parties were requested to submit written comments on or before Oct. 4, 1982. An oral hearing was held on the same date. Written comments relating to proposed rules 2.101, 2.102, 2.103, 2.111, and 2.112 were submitted by four organizations and one individual. Three persons testified at the oral hearing.

Two of the individuals testified in behalf of organizations which also submitted written comments. Each of the two testified that the organization which he represented approved of the proposed amendments except as indicated in the organization's written comments. The third individual testified concerning the history and purpose of the proposed amendments and expressed his approval of them.

However, further changes to several of these proposed rules, as well as amendments to other trademark rules, were required in order to implement certain trademark provisions of intervening Pub. L. 97-247 enacted Aug. 27, 1982. The text of the law is published in the Patent and Trademark Office Official Gazette of Oct. 26, 1982, at 1023 O.G. 31.

Provisions of Pub. L. 97-247 relating to trademark fees were implemented by trademark fee rule changes which were published in the **Federal Register** on July 30, 1982 at 47 FR 33086 and which took effect on Oct. 1, 1982. That final rule document was based on the public law in effect at that time, Pub. L. 96-517, and on H.R. 6260, which was then pending but is now Pub. L. 97-247. As a result of the fee rule changes, which were subsequently confirmed in a document published in the **Federal Register** on Sept. 17, 1982 at 47 FR 41272, further changes to rule 2.101 (identified in the June 29, 1982 notice as 2.102) were required.

Additional changes to rules 2.101 (identified in the June 29, 1982 notice as 2.102), 2.103 and 2.111, as well as changes to rules 2.161 and 2.162, were required in order to implement the provisions of Sections 8 and 9 of Public Law 97-247. Section 8 of the new law amends Section 8 of the Trademark Act of 1946 (15 U.S.C. 1058) to require that an affidavit or declaration filed under Section 8 show use of the mark in commerce. Section 9(a) amends Section 13 of the Trademark Act (15 U.S.C. 1063) to eliminate the requirement for verification of oppositions (thus permitting a party's attorney to sign an opposition before the Trademark Trial and Appeal Board), and to require that additional requests for extension of time to oppose be filed prior to the expiration of the extension. Section 9(b) amends Section 14 of the Trademark Act (15 U.S.C. 1064) to eliminate the requirement for verification of petitions to cancel (thus permitting a party's attorney to sign petitions to cancel before the Trademark Trial and Appeal Board). The provisions of Sections 8 and 9 of the new law which are implemented by the rules amended in the present notice are effective Feb. 27, 1983.

The proposed changes to rules 2.101 (identified in the June 29, 1982 notice as 2.102), 2.103, 2.111, 2.161, and 2.162 required as a result of the enactment of Pub. L. 97-247 were published in the **Federal Register** on Nov. 24, 1982 at 47 FR 53054. In that notice, as in the June 29, 1982; notice, rules 2.101 and 2.102 were interchanged, and it was indicated in the notice that although rules 2.102 (identified in the notice as 2.101) and 2.112, as proposed in the June 29, 1982, notice, already included the necessary changes called for by Pub. L. 97-247 and thus were not being republished, further comments on the

two proposed rules would be entertained. Interested parties were requested to submit written comments on or before Jan. 7, 1983. Comments were received from one organization.

Other provisions of Pub. L. 97–247 relevant to trademark cases either require no changes in Part 2 of Title 37 CFR or require changes in Part 1 which were proposed in a separate notice.

Sections 10, 11, and 14(c) of the new law amend the Trademark Act but require no changes in the trademark rules of practice. Section 10 amends Section 15 of the Trademark Act (15 U.S.C. 1065) relating to incontestability of registered marks. Under the amended section, a registered mark does not acquire incontestability if its use infringes a valid right acquired under the law of any state or territory by use of a mark or trade name continuing from a date prior to the date of registration. Before the section was amended, the date was the date of publication. Section 11 amends Section 16 of the Act (15 U.S.C. 1066) to correspond to the current practice relating to interferences. The amended section states that an interference will be declared only upon petition to the Commissioner showing extraordinary circumstances. Section 14(c) amends Section 11 of the Act (15 U.S.C. 1061) relating to acknowledgements and verifications. An official authorized to administer oaths in a foreign country may prove such authority by apostille if the foreign country accords like effect to apostilles of designated officials in the United States.

Section 12 of the new law affects practice in both patent and trademark cases. Amendments to the rules in Part 1 which apply to both patent and trademark cases were proposed in a separate notice published in the **Federal Register** on Oct. 27, 1982 at 47 FR 47744.

In summary, this notice of final rulemaking is based upon the notices of proposed rulemaking published in the **Federal Register** on June 29, 1982, at 47 FR 28324 and on Nov. 24, 1982 at 47 FR 53054.

Discussion of Specific Sections Changed

The rules which are being amended are discussed below. (The designation § is used in The Code of Federal Regulations to denominate a rule; lettered subdivisions ("(a)", "(b)", etc.) are subsections of rules; numbered subdivisions ("(1)", "(2)", etc.) are paragraphs within sections or subsections.)

It was proposed in the notice of June 29, 1982, that former §§2.101 and 2.102 be interchanged. That proposal has not been adopted in the amended rules. Further §2.101, as amended, eliminates the requirement for verification of oppositions.

Section 2.101(a), as amended, states when an opposition proceeding is commenced, which is important for the application of §2.135.

Section 2.101(b), as amended, indicates that an opposition should be addressed to the Trademark Trial and Appeal Board, which helps to route mail within the PTO.

Section 2.101(c), as amended, requires that an opposition be filed within thirty days after publication of the application or prior to the expiration of a granted extension of time for filing an opposition.

Section 2.101(d)(1) requires the payment of the statutory fee for an opposition, and provides for the late payment of opposition fee or fees, when a notice of opposition is not accompanied by at least one full fee to oppose one class by one person, if the required fee(s) is submitted to the Patent and Trademark Office within the time limit set in the notification of the defect by the Office. This section incorporates the substance of, and replaces, §2.101(c) which was adopted effective Oct. 1, 1982, 47 FR 33086 at 33111.

Section 2.101(d) (2) and (3) provide, where the fees that are submitted are insufficient for the number of classes being opposed and/or for the number of persons joined as party opposer, an opportunity for submission of the required fees or specification of the class or classes opposed and/or of the party opposers, and provides for the allocation of the insufficient fees if no such specification is made.

Sections 2.102(a) and (b), as amended, repeat, with revisions to clarify the provisions, former §2.102(a).

Section 2.102(c) requires that a notice of opposition be filed within thirty days after publication of the application or prior to expiration of a granted extension of time for filing a notice opposition, and provides that extensions of time to file an opposition aggregating more than 120 days will not be granted except upon (1) the written consent of applicant, or (2) a written request by the potential opposer which states that applicant has consented to the request and which includes proof of service upon applicant, or (3) a showing of extraordinary circumstances.

Section 2.102(d) provides that a request to extend the time for filing a notice of opposition should be submitted in triplicate. This section codifies an existing practice which expedites notification of the Board's action on a request for an extension of time.

Section 2.103 is removed. Since §2.101, as amended, eliminates the requirement for verification of an opposition and allows the attorney to sign an opposition without need for subsequent confirmation, §2.103 is unnecessary.

Sections 2.111 and 2.112, as amended, eliminate the requirement for verification of petitions for cancellation. It was proposed in the notice of June 29, 1982 that the requirement for verification of a petition for cancellation be deleted from §2.112 and be placed in §2.111. The requirement is not included in either section, as amended.

Section 2.111(a) states when a cancellation proceeding is commenced, which is important for the application of §2.134.

Section 2.111(b) incorporates most of the provisions of former §2.111 and also indicates that a petition for cancellation should be addressed to the TTAB, which helps to route mail within the PTO.

Section 2.111(c) states the requirement for the payment of the fee(s) due upon filing a petition for cancellation; provides, where the fees that are submitted are insufficient for the number of classes sought to be cancelled and/or for the number of persons joined as party petitioners, an opportunity for submission of the required fees (provided that the five-year period, if applicable, has not expired) or specification of the class or classes sought to be cancelled and/or of the party petitioners; provides for the allocation of the insufficient fees if no such specification is made; and states that the filing date of a petition for cancellation is the date of receipt in the Patent and Trademark Office of the petition with the required fee, and that if the amount of the fee filed with the petition is sufficient for at least one named party petitioner and one class of goods or services but is less than the required amount because multiple party petitioners and/or multiple classes in the registration for which cancellation is sought are involved, and the required additional amount of the fee is filed within the time limit set in the notification of the defect by the Office, the filing date of the petition with respect to the additional party petitioners and/or classes is the date of receipt in the Patent and Trademark Office of the additional fees.

Section 2.112(a) incorporates that part of former §2.112 which described the contents of a petition for cancellation, except that the requirement for verification has been removed.

Section 2.112(b) states the conditions for filing a consolidated petition for cancellation of different registrations owned by the same party.

Section 2.161, as amended, requires that an affidavit or declaration filed under Section 8 of the Trademark Act of 1946 show that the mark is in use in commerce.

Sections 2.162(e), (f) and (g), as amended, require that the affidavit or declaration filed under Section 8 of the Trademark Act of 1946 state that the mark is in use in commerce, and specify the nature of such commerce. The latter requirement is consistent with §2.33(viii) of the trademark rule which requires that the application for trademark registration specify the nature of the commerce in which the mark is used.

Response to Comments on the Rules

All of the comments received in response to the notices of proposed rulemaking published in the **Federal Register** on June 29, 1982, and Nov. 24, 1982, have been given careful consideration, and a number of the suggested modifications have been adopted. The comments and responses appear below.

Comment: One organization opposed the proposal to reverse the order of §§2.101 and 2.102, asserting that a change in the location of §2.101 would be likely to cause confusion, and that the more logical order is to first explain the substance of filing an opposition and then explain how to obtain an extension of time in which to act.

Response: To minimize confusion in view of the numerous recent rule changes and proposed rule changes, the proposal to reverse the order of §§2.101 and 2.102 has been withdrawn.

Comment: One organization noted that in §§2.101 and 2.102, as proposed, the term "opposition", when used to refer to the complaint in an opposition proceeding, has been changed to "notice of opposition". The organization expressed its belief that there is no reason for reverting to the phrase "notice of opposition" except tradition, and that that phrase is confusingly similar to the phrase "notification of opposition".

Response: The proposal to change "opposition" to "notice of opposition" in certain instances has not been adopted.

Comment: Two organizations suggested that §2.101(d) (identified as §2.102(e) and as 2.102(d) in the notices of proposed rulemaking of June 29, 1982, and Nov. 24, 1982, respectively), which deals with insufficient opposition fees and provides for the allocation of the fees submitted, be revised to give opposer(s) an opportunity to select the opposer(s) and/or classes to which the submitted fees apply. One of these organizations suggested that the opposer also be given an opportunity to submit the proper fee(s). Similar comments were made with respect to §2.111(c) (identified in the June 29, 1982 notice as §2.111(d)), which deals with insufficient cancellation fees.

Response: Where the fees submitted are insufficient for each named party opposer or petitioner for each class sought to be opposed or cancelled, it is in fact the practice of the Board to give the opposer(s) or petitioner(s) an opportunity to either submit the proper fees or to select the opposer(s) or petitioner(s) and/or classes to which the submitted fees apply. Accordingly, the sections have been changed to reflect this practice. See also, with respect to insufficient cancellation fees, §2.85(e).

Comment: One member of one of the organizations suggested that the subsections identified as §2.102 (e) and (f) in the notice of proposed rulemaking of June 29, 1982, and as §2.102 (d) and (e) in the notice of proposed rulemaking of Nov. 24, 1982, be consolidated into a single subsection so that all of the provisions concerning insufficient opposition fees will appear in the same subsection. Another organization suggested that these and certain other portions of the rules dealing with fees be moved to §2.6 or a new §2.7.

Response: The suggestion concerning consolidation has been adopted, and the two subsections in question have been consolidated into the single subsection now identified as §2.101(d). Inasmuch as it is believed that the most logical and effective location for these provisions is §2.101, the suggestion that they be moved to §2.6 or a new §2.7 has not been adopted.

Comment: One individual suggested that §2.101(a) (identified as §2.102(a) in the notices of proposed rulemaking) and §2.111(a) be modified by inserting the word "properly" before the word "executed" in order to make it clear that an opposition or cancellation proceeding is not commenced until a properly verified complaint has been filed.

Response: In view of the elimination of the requirement for verification of oppositions and petitions for cancellation, this suggestion is moot.

Comment: One organization suggested, with respect to the phrase "or other person authorized to represent the potential opposer" which appears in §2.102(a) (identified as §2.101(a) in the June 29, 1982 notice of proposed rulemaking), that the type of authorization intended here be explained by inserting a cross reference to §2.12 (b) and (c) and §2.17(b), the sections entitled "Persons who may practice before the Patent and Trademark Office in trademark cases" and "Recognition for representation", respectively.

Response: The subsection has been modified as suggested.

Comment: One organization stated, with respect to §2.102(b) (identified in the June 29, 1982 notice of proposed rulemaking as §2.101(b)), that it agreed with "the PTO's proposed amendment in paragraph (b) regarding 'privity'," but believed that "the intent should be mentioned in the legislative history of the rules."

Response: The substance of §2.102(b), as amended, is identical to the latter portion of former §2.102(a). That is, the amendment is not substantive in nature but rather involves a slight improvement in the wording of the subsection. The provision concerning privity was added by an earlier amendment effective Feb. 1, 1976. The legislative history of that rule change may be found in the notice of proposed rulemaking published in the **Federal Register** on Feb. 11, 1975 at 40 FR 6363 and in the notice of final rulemaking published in the **Federal Register** at 41 FR 756.

Comment: One organization suggested that the phrase "under this section" be deleted from the subsection identified as §2.101(c) in the June 29, 1982 notice of proposed rulemaking (§2.102(c), as amended) so that extensions can be granted without requiring a showing of good cause following an extension which is not made under this section, as, for example, after a blanket extension published in the Official Gazette.

Response: The suggestion has been adopted.

Comment: Two organizations and some of the members of the "cognizant committee" of a third organization commented, with respect to the subsection identified in the June 29, 1982 notice as §2.101(c) (§2.102(c), as amended), that the requirement that a potential opposer seeking an extension of time beyond 120 days based upon the consent of applicant must furnish applicant's consent in writing is unduly harsh and that the potential opposer should be permitted to rely upon applicant's oral consent.

Response: Rule 2.102(c), as amended, permits the potential opposer to rely upon applicant's oral consent provided that the request to extend is accompanied by proof of service upon applicant or its authorized representative. Although proof of service of papers filed in connection with an inter partes proceeding before the Board upon the other parties to the proceeding is required after the proceeding commences, it is not normally required prior to that time. However, where a request for extension of time to oppose beyond 120 days is based upon potential opposer's assertion that applicant has given its oral consent thereto, the requirement for proof of service is necessary in order to provide applicant written confirmation of its oral consent.

Comment: Another portion of the "cognizant committee" of the organization referred to in the comment above suggested, with respect to the same subsection, that either the language regarding written stipulation be deleted or that the word "or" before the phrase "upon a showing of extraordinary circumstances" be changed to "and", thereby making a showing of extraordinary circumstances an essential requirement for any extension of time to oppose beyond 120 days.

Response: It is advantageous both to the Office and to the parties to a potential opposition if the conflict between the parties can be settled without resort to an opposition proceeding. It is believed that the changes suggested by this portion of the committee are unduly

restrictive and would cause oppositions to be filed in cases where they might otherwise be avoided. Accordingly, the proposed changes have not been made. It should be noted in this regard that even when a request for extension of time beyond 120 days is based upon the written or oral consent of the applicant, good cause must still be shown for the requested extension. Thus the potential for abuse of the extension of time process which would exist if there were no requirement for a showing of good cause is avoided in §2.102(c) as amended.

Comment: One organization questioned the provisions in §2.111 for the payment of late fees in connection with a petition for cancellation as being possibly inconsistent with §14 of the Trademark Act of 1946, which states that the "petition * * * may, upon payment of the prescribed fee, be filed * * *"; noted that there is the possibility that the five-year period of §14 would pass between the filing of the petition and the payment of the fee as to one or more classes; and suggested that a petition to cancel should not be effective as to any class or person until the fee for that class is paid and the filing is complete.

Response: While it has been held, because of the power granted to the Commissioner by §13 of the Trademark Act of 1946 to extend the time for filing a notice of opposition and to fix a time within which an unverified opposition may be verified, that the payment of the required fee is not jurisdictional in the case of an opposition (See: Marzall v. Libby, McNeill & Libby, 89 USPQ 10 (D.C. Cir. 1951), and Colgate-Palmolive Co. v. Brenner, 148 USPQ 535 (S.D.N.Y. 1965)), the Court of Customs and Patent Appeals has held, in The Williamson-Dickie Manufacturing Co. v. Mann Overall Co., Inc., 149 USPQ 518 (CCPA 1966), that the payment of the required fee for a petition for cancellation is a jurisdictional requirement without which a petition has not been filed in compliance with §14 of the statute. Cf. §9 of the Trademark Act of 1946 (which, like §14, contains no provision granting the Commissioner the power to extend the time for filing), §2.183(b) of the Trademark Rules of Practice, and In re Michaels Stern & Co., Inc., 199 USPQ 382 (Comr. 1978). Further, when multiple classes are combined in a single application or registration, the combined application or registration is regarded as though it were a group of individual applications which have been physically assembled within a single file wrapper bearing a single serial or registration number, and each of these individual applications or registrations must stand or fall on its own merits in pre-registration and post-registration ex parte and inter partes proceedings, so that if an opposition or petition for cancellation is filed with respect to more than one of the classes in the combined application or registration, there are effectively multiple separate proceedings, each of which must be determined on its own facts and merits. See, for example: Federated Foods, Inc. v. Fort Howard Paper Co., 192 USPQ 24 (CCPA 1974), and In re Bombardier Limited, 204 USPQ 943 (Comr. 1979). Similarly, when multiple persons are named in a complaint as party opposers or petitioners, each must show that it would be damaged by the issuance or continued existence of the registration in question, so that if two different persons, for example, are joined as party petitioners, there are effectively two different cancellation proceedings, each of which must be determined on its own merits. It follows from the foregoing that when a petition for cancellation involves multiple classes and/or party petitioners, the required fee is jurisdictional with respect to each class and/or party petitioner, that is, that the petition for cancellation is not effective as to any class or person until the fee for that class or person has been received by the Office; and that if the five-year period of §14 of the Trademark Act of 1946 expires between the filing of the petition and the payment of the fee as to one or more classes or party petitioners, the petition as those classes or party petitioners can be entertained by the Trademark Trial and Appeal Board only to the extent that the petition is based upon the provisions of §14 (c), (d) or (e) or §24 of the statute or seeks cancellation of a registration issued under the Act of 1920. Accordingly, §2.111(a) has been revised to state that a cancellation proceeding is commenced by the timely filing of a petition for cancellation, together with the required fee, in the Patent and Trademark Office; the last sentence of subsection (b) has been revised to indicate that in those cases where the five-year limitation is applicable, both the petition and the required fee must be filed within the five-year period; in subdivisions (1) and (2) of subsection (c) (identified in the notice of proposed rulemaking of June 29, 1982, as subsection (d)), the provision of an opportunity to submit additional fees is limited, if the five-year period is applicable, to those cases in which the period has not expired; and a new subdivision (3) has been added to subsection (c) stating that the filing date of a petition for cancellation is the date of receipt in the Patent and Trademark Office of the petition together with the required fee, and that if the amount of the fee filed with the petition is sufficient for at least one named party petitioner and one class of goods or services but is less than the required amount because multiple party petitioners and/or multiple classes in the registration for which cancellation is sought are involved, and the required additional amount of the fee is filed within the time limit set in the notification of the defect by the Office, the filing date of the petition with respect to the additional party petitioners and/or classes is the date of receipt in the Patent and Trademark Office of the additional fees.

Comment: One organization suggested that a cross reference to §2.6 be added to §2.111(c)(1) (identified in the June 29, 1982, notice of proposed rulemaking as §2.111(d)(1)) along with the reference to §2.85(e).

Response: A cross reference to §2.6 has been added to §2.111(c)(1), along with the reference to §2.85(e).

Comment: One organization objected to §2.162(e) to the extent that it requires that a statement of use in commerce "must be supported by evidence which shows that the mark is in use in commerce * * *," and recommended that the words "in commerce" be deleted from the quoted phrase. The organization indicated that while it did not object to the requirement of use in commerce, nor to the requirement of a showing that the mark is in use, it did object to a requirement of a showing that the mark is in use in commerce since such a showing could not be accomplished by a mere specimen but would also require invoices or the like.

Response: The subsection has been modified as suggested.

Environmental, Energy, and Other Considerations

The rule change will not have a significant impact on the quality of the human environment or the conservation of energy resources.

The rule change will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act, Pub. L. 96–354). The rule change includes no additional or increased fees. Substantive rights to use valuable trademarks are not adversely affected. The rule change serves to implement the required trademark provisions of Pub. L. 97–247.

The rule change does not impose a record keeping or reporting burden under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 et seq. No additional information is required from the public. No additional records are required to be maintained by the Patent and Trademark Office because there are no additional fees or proceedings to monitor.

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291. The annual effect on the economy will be less than $100 million. There will be no major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. There will be no significant, adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States based enterprises to compete with foreign based enterprises in domestic or export markets.

List of Subjects in 37 CFR Part 2

Administrative practice and procedure, Courts, Lawyers, Trademarks.

Amendment of Regulations

After consideration of the comments received and pursuant to the authority contained in 15 U.S.C. 1123, Part 2 of Title 37 of the Code of Federal Regulations is amended as set forth below.

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

1. Section 2.101 is revised to read as follows:

§2.101 Filing an opposition.

(a) An opposition proceeding is commenced by the filing of an opposition in the Patent and Trademark Office.

(b) Any person who believes that he would be damaged by the registration of a mark on the Principle Register may oppose the same by filing an opposition, which should be addressed to the Trademark Trial and Appeal Board.

(c) The opposition must be filed within thirty days after publication (§2.80) of the application being opposed or within an extension of time (§2.102) for filing an opposition.

(d)(1) The opposition must be accompanied by the required fee for each party joined as opposer for each class in the application for which registration is opposed (see §2.6(1)). If no fee, or a fee insufficient to pay for one person to oppose the registration of a mark in at least one class, is submitted within thirty days after publication of the mark to be opposed or within an extension of time for filing an opposition, the opposition will not be refused if the required fee(s) is submitted to the Patent and Trademark Office within the time limit set in the notification of this defect by the Office.

(2) If the fees submitted are sufficient to pay for one person to oppose registration in at least one class but are insufficient for an opposition against all of the classes in the application, and the particular class or classes against which the opposition is filed are not specified, the Office will issue a written notice allowing opposer until a set time in which to submit the required fee(s) or to specify the class or classes opposed. If the required fee(s) is not submitted, or the specification made, within the time set in the notice, the opposition will be presumed to be against the class or classes in ascending order, beginning with the lowest numbered class and including the number of classes in the application for which the fees submitted are sufficient to pay the fee due for each class.

(3) If persons are joined as party opposers, and the fees submitted are sufficient to pay for one person to oppose registration in at least one class but are insufficient for each named party opposer, the Office will issue a written notice allowing the named party opposers until a set time in which to submit the required fee(s) or to specify the opposer(s) to which the submitted fees apply. If the required fee(s) is not submitted, or the specification made, within the time set in the notice, the first named party will be presumed to be the party opposer and additional parties will be deemed to be party opposers to the extent that the fees submitted are sufficient to pay the fee due for each party opposer. If persons are joined as party opposers against the registration of a mark in more than one class, the fees submitted are insufficient, and no specification of opposers and classes is made within the time set in the written notice issued by the Office, the fees submitted will be applied first on behalf of the first-named opposer against as many of the classes in the application as the submitted fees are sufficient to pay, and any excess will be applied on behalf of the second-named party to the opposition against the classes in the application in ascending order.

2. Section 2.102 is revised to read as follows:

§2.102 Extension of time for filing an opposition.

(a) Any person who believes that he would be damaged by the registration of a mark on the Principal Register may file a written request to extend the time for filing an opposition. The written request may be signed by the potential opposer or by an attorney at law or other person authorized, in accordance with §2.12 (b) and (c) and §2.17(b), to represent the potential opposer.

(b) The written request to extend the time for filing an opposition must identify the potential opposer with reasonable certainty. Any opposition filed during an extension of time should be in the name of the person to whom the extension was granted, but an opposition may be accepted if the person in whose name the extension was requested was misidentified through mistake or if the opposition is filed in the name of a person in privity with the person who requested and was granted the extension of time.

(c) The written request to extend the time for filing an opposition must be filed in the Patent and Trademark Office before the expiration of thirty days from the date of publication or within any extension of time previously granted, should specify the period of extension desired, and should be addressed to the Trademark Trial and Appeal Board. A first extension of time for not more than thirty days will be granted upon request. Further extensions of time may be granted by the Board for good cause. In addition, extensions of time to file an opposition aggregating more than 120 days from the date of publication of the application will not be granted except upon (1) a written consent or stipulation signed by the applicant or its authorized representative, or (2) a written request by the potential opposer or its authorized representative stating that the applicant or its authorized representative has consented to the request, and including proof of service on the applicant or its authorized representative, or (3) a showing of extraordinary circumstances, it being considered that a potential opposer has an adequate alternative remedy by a petition for cancellation.

(d) Every request to extend the time for filing a notice of opposition should be submitted in triplicate (original plus two copies).

§2.103 [Removed]

3. Section 2.103 is removed.

4. Section 2.111 is revised to read as follows:

§2.111 Filing petition for cancellation.

(a) A cancellation proceeding is commenced by the timely filing of a petition for cancellation, together with the required fee, in the Patent and Trademark Office.

(b) Any person who believes that he is or will be damaged by a registration may file a petition, which should be addressed to the Trademark Trial and Appeal Board, to cancel the registration in its entirety or for each class in the registration specified in the petition. The petition may be filed at any time in the case of registrations on the Supplemental Register or under the Act of 1920, or registrations under the Act of 1881 or the Act of 1905, which have not been published under §12(c) of the Act of 1946, or on any ground specified in §14 (c) or (e) of the Act of 1946. In all other cases the petition and the required fee must be filed within five years from the date of registration of the mark under the Act of 1946 or from the date of publication under §12(c) of the Act of 1946.

(c)(1) The petition must be accompanied by the required fee for each class in the registration for which cancellation is sought (see §§2.6(1) and 2.85(e)). If the fees submitted are insufficient for a cancellation against all of the classes in the registration, and the particular class or classes against which the cancellation is filed are not specified, the Office will issue a written notice allowing petitioner until a set time in which to submit the required fee(s) (provided that the five-year period, if applicable, has not expired) or to specify the class or classes sought to be cancelled. If the required fee(s) is not submitted, or the specification made, within the time set in the notice, the cancellation will be presumed to be against the class or classes in ascending order, beginning with the lowest numbered class, and including the number of classes in the registration for which the fees submitted are sufficient to pay the fee due for each class.

(2) If persons are joined as party petitioners, each must submit a fee for each class for which cancellation is sought. If the fees submitted are insufficient for each named party petitioner, the Office will issue a written notice allowing the named party petitioners until a set time in which to submit the required fee(s) (provided that the five-year period, if applicable, has not expired) or to specify the petitioner(s) to which the submitted fees apply. If the required fee(s) is not submitted, or the specification made, within the time set in the notice, the first named party will be presumed to be the party petitioner and additional parties will be deemed to be party petitioners to the extent that the fees submitted are sufficient to pay the fee due for each party petitioner. If persons are joined as party petitioners against a registration sought to be cancelled in more than one class, the fees submitted are insufficient, and no specification of parties and classes is made within the time set in the written notice issued by the Office, the fees submitted will be applied first on behalf of the first-named petitioner against as many of the classes in the registration as the submitted fees are sufficient to pay, and any excess will be applied on behalf of the second-named party to the petition against the classes in the registration in ascending order.

(3) The filing date of the petition is the date of receipt in the Patent and Trademark Office of the petition together with the required fee. If the amount of the fee filed with the petition is sufficient to pay for at least one person to petition to cancel one class of goods or services but is less than the required amount because multiple party petitioners and/or multiple classes in the registration for which cancellation is sought are involved, and the required additional amount of the fee is filed within the time limit set in the notification of the defect by the Office, the filing date of the petition with respect to the additional party petitioners and/or classes is the date of receipt in the Patent and Trademark Office of the additional fees.

5. Section 2.112 is revised to read as follows:

§2.112 Contents of petition for cancellation.

(a) The petition to cancel must set forth a short and plain statement showing how the petitioner is or will be damaged by the registration, state the grounds for cancellation, and indicate the respondent party to whom notification shall be sent. A duplicate copy of the petition, including exhibits, shall be filed with the petition.

(b) Petitions to cancel different registrations owned by the same party may be joined in a consolidated petition when appropriate, but the required fee must be included for each party joined as petitioner for each class sought to be cancelled in each registration against which the petition to cancel is filed.

6. Section 2.161 is revised to read as follows:

§2.161 Cancellation for failure to file affidavit or declaration during sixth year.

Any registration under the provisions of the Act of 1946 and any registration published under the provisions of section 12(c) of the Act (§2.153) shall be cancelled as to any class in the registration at the end of six years following the date of registration or the date of such publication, unless within one year next preceding the expiration of such six years the registrant shall file in the Patent and Trademark Office an affidavit or declaration in accordance with §2.20 showing that said mark is in use in commerce as to such class or showing that its nonuse as to such class is due to special circumstances which excuse such nonuse and is not due to any intention to abandon the mark.

7. Section 2.162 is amended by revising paragraphs (e), (f) and (g) to read:

§2.162 Requirements for affidavit or declaration during sixth year.

* * * * *

(e) State that the registered mark is in use in commerce and specify the nature of such commerce (except under paragraph (f) of this section). The statement must be supported by evidence which shows that the mark is in use, and normally such evidence consists of a specimen or a facsimile specimen which is currently in use, or a statement of facts concerning use. The supporting evidence should be submitted with the affidavit or declaration, but if it is not or if the evidence submitted is found to be deficient, the evidence, or further evidence, may be submitted and considered even though filed after the sixth year has expired;

(f) If the registered mark is not in use in commerce, recite facts to show that nonuse is due to special circumstances which excuse such nonuse and is not due to any intention to abandon the mark. If the facts recited are found not to be sufficient, further evidence or explanation may be submitted and considered even though filed after the sixth year has expired; and

(g) Contain the statement of use in commerce or statement as to nonuse and appropriate evidence, as required in paragraphs (e) and (f) of this section, for each class to which the affidavit or delcaration pertains in this registration.

(Secs. 8 and 9, Pub. L. 97–247 (96 Stat. 320))

Jan. 19, 1983. DONALD J. QUIGG, *Deputy Commissioner of Patents and Trademarks.*

[FR Doc. 83-2550 Filed 1-27-83; 8:45 am]

BILLING CODE 3510-16-M

[1027 TMOG 129]

Department Of Commerce

(126) **Patent and Trademark Office**

37 CFR Part 2

(Docket No. 30428-69)

Trademark Applications and Examination Proceedings; Trademark Interference, Concurrent Use, Opposition and Cancellation Proceedings; Trademark Post-Registration Proceedings

Agency: Patent and Trademark Office, Commerce.

Action: Final rule.

Summary: The Patent and Trademark Office is amending the rules of practice in trademark cases to clarify and revise procedures for the examination of applications; appeals from final refusals of registration; the institution and/or conduct of trademark interference, concurrent use, opposition and cancellation proceedings; the examination of affidavits or declarations under section 8 of the Trademark Act of 1946; amendments to registrations under section 7 (d) of the Trademark Act; and petitions to the Commissioner. The procedures revise or codify existing practices, or simplify procedures, or establish periods of time, to assist the orderly and prompt resolution of issues.

Effective Date: June 22, 1983.

For Further Information Contact: Miss Janet E. Rice by telephone at (703) 557-3551 or by mail addressed to the Commissioner of Patents and Trademarks, Attention: Miss Janet E. Rice, Crystal Square 5, Suite 1008, Washington, D.C. 20231.

Supplementary Information: Amendments to §§2.20, 2.27, 2.63, 2.64, 2.65, 2.72, 2.81, 2.96, 2.98, 2.99, 2.101, 2.102, 2.103, 2.104, 2.105, 2.106, 2.107, 2.111, 2.112, 2.113, 2.115, 2.116, 2.117, 2.120, 2.121, 2.122, 2.123, 2.124, 2.125, 2.127, 2.128, 2.129, 2.131, 2.132, 2.134, 2.135, 2.142, 2.146, 2.165, 2.173, 2.184, and 2.186 and the removal of §§2.88, 2.94, 2.95, 2.97, 2.126, 2.147, and 2.148 were proposed in a rulemaking notice published in the **Federal Register** on June 29, 1982, at 47 FR 28324, the Patent and Trademark Office *Official Gazette* of July 27, 1982, at 1020 O.G. 25, and Vol. 24 of *BNA's Patent, Trademark & Copyright Journal* (July 1, 1982) at p. 236. The purpose of these proposed amendments was to revise and codify existing practices. One of the proposed amendments (subsequently not adopted) was to interchange§§2.101 and 2.102. Interested parties were requested to submit written comments on or before Oct. 4,

1982. An oral hearing was held on the same date. Written comments were submitted by four organizations and four individuals. Three persons testified at the oral hearing. Two of the individuals testified in behalf of organizations which also submitted written comments. Each of the two testified that the organization which he represented approved of the proposed amendments except as indicated in the organization's written comments. The third individual testified concerning the history and purpose of the proposed amendments and expressed his approval of them.

However, further changes to several of these proposed rules, as well as amendments to other trademark rules, were required in order to implement certain trademark provisions of intervening Pub. L. 97-247 enacted Aug. 27, 1982. The text of the law is published in the Patent and Trademark Office *Official Gazette* of Oct. 26, 1982, at 1023 O.G. 31.

Provisions of Pub. L. 97-247 relating to trademark fees were implemented by trademark fee rule changes which were published in the **Federal Register** on July 30, 1982 at 47 FR 33086 and which took effect on Oct. 1, 1982. That final rule document was based alternatively on the law in effect at that time, Pub. L. 96-517, and on H.R. 6260, which was then pending but is now Pub. L. 97-247. As a result of the fee rule changes, which were based on Pub. L. 97-247 and subsequently confirmed in a document published in the **Federal Register** on Sept. 17, 1982 at 47 FR 41282, further changes to §2.101 [identified in the June 29, 1982 notice as §2.102] were required.

Additional changes to §2.101 [identified in the June 29, 1982 notice as §2.102] and §2.111, the removal of §2.103, and changes to §§2.161 and 2.162 were required in order to implement the provisions of Sections 8 and 9 of Pub. L.97-247. Section 8 of the new law amends Section 8 of the Trademark Act of 1946 (15 U.S.C. 1058) to require that an affidavit or declaration filed under Section 8 show use of the mark in commerce. Section 9(a) amends Section 13 of the Trademark Act (15 U.S.C. 1063) to eliminate the requirement for verification of oppositions (thus permitting a party's attorney to sign an opposition before the Trademark Trial and Appeal Board), and to require that additional requests for extension of time to oppose be filed prior to the expiration of the extension. Section 9(b) amends Section 14 of the Trademark Act (15 U.S.C. 1064) to eliminate the requirement for verification of petitions to cancel (thus permitting a party's attorney to sign petitions to cancel before the Trademark Trial and Appeal Board). The provisions of Sections 8 and 9 of the new law became effective Feb. 27, 1983.

The additional proposed changes to §1.101 (identified in the June 29, 1982 notice as §2.102) and §2.111, the changes to §§2.161 and 2.162, and the proposed removal of §2.103, all required as a result of the enactment of Pub. L. 97-247, were published in the **Federal Register** on Nov. 24, 1982 at 47 FR 53054. In that notice, as in the June 29, 1982 notice, §§2.101 and 2.102 were interchanged, and it was indicated in the notice that although§2.102 [identified in the notice as §2.101] and §2.112, as proposed in the June 29, 1982 notice, already included the necessary changes called for by Pub. L. 97-247 and thus were not being republished, further comments on the two proposed rules would be entertained. Interested parties were requested to submit written comments on or before Jan. 7, 1983. Comments were received from one organization.

In a notice of final rulemaking published in the **Federal Register** on Jan. 28, 1983 at 48 FR 3972, and in the *Official Gazette* of Feb. 22, 1983 at 1027 O.G. 129, §2.103 was removed, and §§2.101, 2.102, 2.111, 2.112, 2.161, and 2.162 were amended, to incorporate changes adoped both as a result of the notice of proposed rulemaking of June 29, 1982 (to revise and codify existing practices) and as a result of the notice of proposed rulemaking of Nov. 24, 1982 (to implement the provisions of Sections 8 and 9 of Pub. L. 97-247). All of the comments relating to §§2.101, 2.102, 2.103, 2.111, 2.112, 2.161, and 2.162 which were received in response to the two notices of proposed rulemaking were discussed in that final rule notice and the rule changes adopted therein became effective on Feb. 27, 1983.

Accordingly, this final rule notice does not include a discussion of the comments relating to §§2.101, 2.102, 2.103, 2.111, and 2.112 which were received in response to the June 29, 1982 notice of proposed rulemaking.

Discussion of Specific Sections Changed:

The rules which are being amended are discussed below. (The designation § is used in The Code of Federal Regulations to denominate a rule. If internal division of a section is necessary, it is divided into paragraphs designated as follows: "a", "b", etc. at the first level; "1", "2", etc. at the second level; "i", "ii", etc. at the third level; "A", "B", etc. at the fourth level; "*I*", "*2*", etc. at the fifth level; and "*i*", "*ii*", etc. at the sixth level.)

In this preamble to the rulemaking, "Patent and Trademark Office" is abbreviated as "PTO" and "Trademark Trial and Appeal Board" is abbreviated as "TTAB".

Section 2.20 was proposed to be amended by the addition of a new paragraph (b) to codify the practice whereby a nonofficer of a corporation or association who is authorized to sign a notice of opposition or petition for cancellation may verify the pleading by a declaration in lieu of an oath or affirmation. Inasmuch as the requirement for verification has been eliminated (See Pub. L. 97-247, enacted Aug. 27, 1982 and the final rule notice published in the **Federal Register** on Jan. 28, 1983 at 48 FR 3972), this proposal is withdrawn as moot.

Section 2.27(e) is added to permit the PTO to retain in confidence, not available for public inspection, anything filed under seal pursuant to a protective order [see amended §§2.120(f) and 2.125(e)]. Conforming amendments are made in paragraphs (b) and (d) of §2.27.

Section 2.63 is clarified and designated as paragraph (a).

Section 2.63(b) is added to codify the practice of allowing an applicant to petition to the Commissioner for relief from either an examiner's repeated but nonfinal formal requirement which is appropriate for petition to the Commissioner or a final action which is limited to subject matter which is appropriate for petition to the Commissioner. The paragraph also requires that a petition be timely and sets a time limit for action after denial of a petition. See amended §2.146(b) for a description of nonpetitionable subject matter and amended §2.146(d) for the time limit (sixty days) for a petition. The final text includes a phrase that was not included in the proposed paragraph, namely, the phrase "and the subject matter of the requirement is appropriate for petition to the Commissioner" which now appears in the clause "(1) the requirement is repeated, but the examiner's action is not made final, and the subject matter of the requirement is appropriate for petition to the Commissioner;". The phrase has been added in order to further clarify the intent of the paragraph and is not considered to result in a material alteration thereof.

Section 2.64 is designated as paragraph (a) and revised to agree with the provision in §2.63(b) permitting petitions to the Commissioner concerning some requirements which have been made final.

Section 2.64(b) is added to clarify the existing practice of replying to requests for reconsideration after final action, and to permit entry of amendments accompanying such requests if they comply with the Act of 1946 and the rules of practice in trademark cases.

Section 2.65 is designated as paragraph (a) and amended by the addition of a sentence to provide that a timely and proper petition under §2.63(b) avoids the abandonment of an application. A new paragraph (b) permits the examiner to allow an applicant additional time to explain and supply an inadvertent omission which would otherwise have resulted in the application being held abandoned. The final text of (b) includes a phrase that was not included in the paragraph as proposed, namely, the phrase "filed within the six-month re-

sponse period" which now appears in the clause beginning "When action by the applicant filed within the six-month response period is a bona fide attempt to advance the examination of the application * * *." The phrase has been added in order to further clarify the intent of the paragraph and is not considered to result in a material alteration thereof.

Section 2.72 is revised so that the standard for amendment of a mark in an application now is the same in terms as the standard for amendment of a registered mark set forth in section 7(d) of the Act of 1946.

Section 2.72 was proposed to be further revised to allow non-material changes in the drawing to be supported by specimens which were not necessarily in use at the time the original application was filed. However, upon further consideration, it appears that the proposed revision might result in so many amendments to marks as to constitute a burden on the Patent and Trademark Office. Accordingly, this part of the proposal is withdrawn.

Section 2.81 is revised to clarify the language of the section. Proposed §2.81 has been slightly reworded herein so as to further improve the clarity of the section.

Section 2.88 is deleted because requests to consolidate applications are very rare and the procedure is unworkable. See Official Gazette notice of July 29, 1981, 1009 TMOG 17.

Section 2.94 is deleted because interferences are declared only upon petition [see §2.91], which assumes proper review before an interference is declared, and existing §2.94 is unnecessary.

Section 2.95 is deleted because the deletion of §2.94 makes §2.95 unnecessary.

Section 2.96 is amended to codify existing practice on the issues determinable in an interference and the order of the parties and burden of proof. The amended rule states who is the junior party if two applications have the same filing date but different dates of execution. The third and fourth sentences of proposed §2.96 have been reworded herein so as to improve the clarity of the section.

Section 2.97 is deleted because it is unnecessary in view of the codification in §2.96.

Section 2.98 is amended to make the rule consistent with existing §2.91.

Section 2.99 is reorganized and amended to describe the concurrent use application procedure in greater detail. Paragraph (a) of the amended rule provides that an application for a concurrent use registration will be examined in the same manner as other applications for registration.

Paragraphs (b) and (c) and paragraph (d)(1) of §2.99 describe the procedure to be used to institute a concurrent use proceeding.

Paragraphs (d)(2) and (3) of §2.99 codify existing practice on who must file an answer to a notice of institution of a concurrent use proceeding and the effect of not filing an answer.

Section 2.99(e) codifies existing practice on the order of the parties and the burden of proof and states who is the junior party if two applications have the same filing date but different dates of execution. A person specified as an excepted user but who has not filed an application is stated to be a senior party to every party that has an application involved in the proceeding because a party without an application is seeking no relief and therefore has no burden of proving entitlement to relief.

Section 2.99(f) provides for the issuance of a concurrent use registration upon the basis for a court's determination of the rights of the parties to use their marks in commerce, without the institution of a proceeding by the TTAB, when all of the conditions specified in the rule are fulfilled. The first clause in paragraph (f), which, as proposed, read "when a concurrent use registration is sought on the basis of a court's determination of the rights of the parties to use the marks in commerce, * * *", has been modified herein to read "When a concurrent use registration is sought on the basis that a court of competent jurisdiction has finally determined that the parties are entitled to use the same or similar marks in commerce, * * *." The modified clause closely follows the language of that portion of section 2(d) of the Act of 1946 upon which the rule is based. The modification has been made in order to clarify the subsection and is not considered to result in a material alteration thereof.

Section 2.99(g) codifies existing law that registrations and applications to register on the Supplemental Register and registrations under the Act of 1920 are not subject to concurrent use registration proceedings and implements section 26 of the Act of 1946, which provides, inter alia, that applications for and registrations on the Supplemental Register shall not be subject to section 17 of the Act, which is the statutory authority for a concurrent use registration proceeding (cf. existing §2.91(b)).

Section 2.104 is amended to clarify existing §2.104.

Section 2.105 is amended to clarify existing §2.105 and codify the practice thereunder.

Section 2.106(c) is amended to codify the practice under existing §2.106(c) that, after an answer is filed, an opposition may be withdrawn without prejudice only with the written consent of the applicant.

Section 2.107 is amended to codify the practice under existing §2.107 whereby any pleading, including the answer, may be amended.

Section 2.113 is amended to clarify existing §2.113, which described the procedure for notifying a registrant of the filing of a proper petition for cancellation of his registration. The amended section includes cross-references to §§2.111 and 2.112 (amended effective Feb. 27, 1983), which pertain to the "filing" of and proper form for a petition for cancellation, and to §2.118, which pertains to undelivered Office notices.

Section 2.115 is amended to codify the practice under existing §2.115 whereby any pleading, including the answer, may be amended.

Section 2.116(b) is amended to clarify the language and intent of existing §2.116(b).

Section 2.116(c) is amended to clarify existing §2.116(c). Any complaint filed by a party in an interference or concurrent use proceeding would be a petition for cancellation, and the position of the parties in the consolidated proceeding will be set by the TTAB as required.

Section 2.117 is amended by designating the present section as paragraph (a) and adding two new paragraphs, (b) and (c). Section 2.117 as proposed contained four subsections. Proposed paragraph (b) is withdrawn and proposed paragraphs (c) and (d) are redesignated (b) and (c).

Section 2.117(b) codifies existing practice as to determination of a potentially dispositive motion when the question of suspension of proceedings is raised.

Section 2.117(c) permits a party to move, or parties to stipulate, for suspension, which usually occurs when negotiations for settlement are undertaken and the parties want proceedings suspended for that purpose.

Section 2.120 is amended in several respects, commencing with a reorganization of the rule to state how discovery may be taken, then how discovery may be compelled, then how admissions may be requested and the sufficiency of admissions or objections to requests therefor may be tested, and then how the results of discovery may be used in a proceeding.

Section 2.120(a) clarifies the language of the introductory paragraph of existing §2.120.

Section 2.120(b) clarifies existing §2.120(a)(1) and codifies the practice thereunder, and is made applicable to domestic parties.

Section 2.120(c)(1) restates in modified form the provisions of existing §2.120(a)(2), and in addition, permits oral discovery depositions in foreign countries on motion for good cause or by stipulation of the parties.

Section 2.120(c)(2) provides for oral discovery depositions within the United States of foreign parties or their officers, etc. if they will be in the United States during a

discovery period.

Section 2.120(d) makes specific provision for requests for production and codifies the practice for this kind of discovery.

Section 2.120(e) clarifies existing §2.120(c)(1) and codifies the practice on motions to compel discovery.

Section 2.120(f) adds provisions pertaining to protective orders during discovery.

Section 2.120(g) clarifies existing §2.120(c)(2) and further codifies the practice on sanctions for failing to obey orders pertaining to discovery.

Section 2.120(h) adds to the discovery rules provisions pertaining to requests for admissions and codifies the practice pertaining to requests for admissions.

Section 2.120(i) codifies the practice on the use of telephone and pre-trial conferences to resolve disputes.

Section 2.120(j) clarifies existing §2.120(a)(3) relating to the use of discovery depositions, and codifies and revises the practice on the filing with the TTAB of matter obtained during discovery and the use thereof at trial.

Section 2.121 clarifies existing §2.121 and codifies the practice thereunder.

Section 2.122 consolidates in one section the rules governing the introduction and admission of certain types of evidence in inter partes proceedings before the TTAB.

Section 2.122(a) identifies the sources of the law of evidence to be applied in inter partes proceedings.

Section 2.122(b)(1) clarifies the language and codifies the practice under existing §2.122(a).

Paragraph (b)(2) and paragraph (c) of §2.122 clarify existing §2.126 and codify the practice under that section.

Section 2.122(d)(1) incorporates all of the substance of existing §2.122(b) relating to the introduction in evidence of a plaintiff's pleaded registration with the complaint, except that the provision permitting the submission of an order for status and title copies of a pleaded registration with the complaint has been eliminated.

Section 2.122(d)(2) provides for the introduction in evidence of a registration owned by a party to a proceeding during the taking of testimony or by the filing of a notice of reliance on the registration, together with status and title copies thereof, during that party's testimony period.

Section 2.122(e) [identified in the notice of proposed rulemaking as §2.122(c)(1)] clarifies and adds to the provisions of existing §2.122(c) relating to printed publications and official records. Section 2.122(e) requires that an official record or copy thereof offered under the rule be an authentic record or copy pursuant to the Federal Rules of Evidence and also requires that, when a copy of a relevant portion of a printed publication is offered, the copy include the title page and any other page needed to show the place and date of publication, the name and address of the publisher, and the name of the author or the editor, which information is intended to enable the party against whom the evidence is offered to identify what it is. In the proposed and final rules, a new phrase, namely, "among members of the public or that segment of the public which is relevant under an issue in a proceeding", has been added to the opening clause of existing §2.122(c), so that that clause now reads "Printed publications, such as books and periodicals, available to the general public in libraries or of general circulation among members of the public or that segment of the public which is relevant under an issue in a proceeding". The phrase was added so that it would be clear that a trade journal, for example, is a printed publication of the type contemplated by the rule notwithstanding the fact that it may be circulated only among members of the trade rather than among members of the general public; the addition is not to be construed as an indication that an individual company's promotional literature, product booklets, annual reports, etc., are admissible under this section. Cf. Glamorene Products Corporation v. Earl Grissmer Company, Inc., 203 USPQ 1090 (TTAB 1979); Litton Industries, Inc. v. Litronix, Inc., 188 USPQ 407 (TTAB 1975); and Minnesota Mining and Manufacturing Company v. Stryker Corporation, 179 USPQ 433 (TTAB 1973).

Section 2.122(f) clarifies existing §2.122(d) and codifies the practice thereunder.

Section 2.123 is amended by revising paragraphs (a), (e)(3), (j), and (k) thereof.

Section 2.123(a)(1) provides that testimony may be taken by depositions upon oral questions or upon written questions and further provides that if a party serves a notice of taking a testimonial deposition upon written questions, any adverse party may move to have the deposition taken upon oral questions if the witness, even though he may be a foreign party or a person who usually resides in a foreign country, is, or at the time of the deposition will be, in the United States or any territory under the control and jurisdiction of the United States.

Section 2.123(a)(2) provides that testimony in a foreign country is ordinarily to be taken by a deposition upon written questions but that the party against whom a testimonial deposition will be taken may move for good cause shown to have it taken by oral questions in a foreign country, and further provides that the parties may stipulate to have testimony taken by an oral deposition in a foreign country.

Section 2.123(e)(3) codifies the practice that a party who did not receive a proper notice of the taking of a deposition with respect to any witness may cross-examine that witness under protest while preserving his right to move to strike the whole of the testimony of that witness.

Section 2.123(j) is revised to provide that Rule 32(d)(1), (2), and (3) (A) and (B) of the Federal Rules of Civil Procedure shall apply to errors and irregularities in depositions; that notice will not be taken of merely formal or technical objections which shall not appear to have wrought a substantial injury to the party raising them; and that in case of such injury it must be made to appear that the objection was raised at the time specified in the aforesaid rule.

Section 2.123(k) is revised to provide that objections to the competency of a witness or to the competency, relevancy, or materiality of testimony must be raised at the time required by Rule 32(d)(3)(A) of the Federal Rules of Civil Procedure, and that such objections will not be considered until final hearing.

Section 2.124 sets out the procedure to be followed in taking a discovery deposition or a testimonial deposition upon written questions.

Section 2.124(a) provides that a deposition upon written questions may be taken before any of the persons described in Rule 28 of the Federal Rules of Civil Procedure.

Section 2.124(b)(1) provides for the kind of notice which must be served by a party desiring to take a testimonial deposition upon written questions and further provides that a copy of the notice, without the questions, must be filed with the TTAB.

Section 2.124(b)(2) provides for the kind of notice which must be served by a party desiring to take a discovery deposition upon written questions and further provides that a copy of the notice, without the questions, must be filed with the TTAB. This paragraph also provides that, if the name of the person to be deposed is not known to the party who will take the deposition, a general description sufficient to identify the class or group to whom the prospective witness belongs shall be stated in the notice and the party to be deposed shall designate one or more discovery witnesses.

Section 2.124(c) requires that every notice of deposition upon written questions name or describe by title the officer before whom the deposition will be taken.

Section 2.124(d)(1) specifies the procedure and timetable for serving the questions, objections, and substitute questions for a deposition upon written questions.

Section 2.124(d)(2) provides that the TTAB may reset the times specified in §2.124(d)(1) and, when a testimonial deposition is to be taken upon written questions, shall suspend or reschedule other proceedings in the matter to allow for the completion of the deposition.

Section 2.124(e) provides the procedure for sending

the notice and questions to the officer designated in the notice, the taking of the deposition, and the certification and mailing of the transcript to the party who took the deposition.

Section 2.124(f) provides for the service of copies of the transcript and exhibits, states that the party who took the deposition is responsible for the correctness of the transcript, permits the use of a discovery deposition as provided by §2.120(j), and provides for the filing with the TTAB of a testimonial deposition, a copy thereof, and the exhibits.

Section 2.124(g) states that objections to questions and answers may be considered at final hearing.

Section 2.125(a) provides for the service of a transcript of an oral testimonial deposition and the exhibits, and, in respect of that requirement, continues the rule of existing §2.125(a).

Section 2.125(b) makes the party who took a deposition responsible for its correctness and for serving the adverse party with a corrected transcript or corrected pages.

Section 2.125(c) continues the requirement of existing §2.125(a) that a certified transcript and the exhibits be filed promptly with the TTAB and further provides that notice of filing be served on the adverse party and that a copy of the notice be filed with the TTAB. The requirement for the filing of a copy of the transcript (in addition to the certified transcript), which appeared both in existing §2.125(a) and in proposed §2.125(c), has not been retained in the final rule since the TTAB does not really need the copy and the printing of it is an unnecessary expense for parties involved in proceedings before the TTAB.

Section 2.125(d) continues the requirements of existing §2.125(b).

Section 2.125(e) provides that the TTAB, on motion, may order that any part of a deposition transcript or exhibits that directly disclose a trade secret or other confidential research, development, or commercial information may be filed under seal and kept confidential and provides for sanctions for failure to comply with the order.

Section 2.126 is deleted because the substance of the existing section has been shifted to §2.122(b)(2) and (c).

Paragraphs (a), (b), and (c) of §2.127 clarify, and codify the practice under, existing paragraphs (a), (b), and (c) of that section.

Section 2.127(d) codifies the practice with respect to suspending all matters in a case not germane to a potentially dispositive motion until the determination thereof.

Section 2.128(a)(1) clarifies existing §2.128(a) except that the rule requiring copies of a brief is shifted to final §2.128(b).

Section 2.128(a)(2) codifies the practice of having the TTAB set the briefing schedule by order when proceedings are consolidated, or when there is a counterclaim, or when more than two parties are involved.

Section 2.128(a)(3) contains a new provision enabling the TTAB to enter judgment against a plaintiff who fails to file a brief at final hearing and also fails to respond to an order to show cause why such judgment should not be entered against him or files a response indicating that he has lost interest in the case.

Section 2.128(b) clarifies and codifies the practice under the last sentence of existing §2.128(a) and existing §2.128(b).

Section 2.129(a) clarifies and codifies the practice under existing §2.128(c) and existing §2.129(a).

Section 2.129(b) clarifies existing §2.129(b).

Section 2.129(c) clarifies existing §2.129(c), from which the language referring to a decision on a motion which is finally dispositive of a case has been deleted because any requests for reconsideration or modification of a decision issued on a motion would be made under final §2.127(b).

Section 2.131 clarifies and codifies the practice under existing §2.131. The effect is to eliminate the dichotomy between inter partes and ex partes issues and to provide for the determination by the TTAB of all issues that have been expressly pleaded by the parties or tried by their express or implied consent and to reserve for remand to the examiner for reexamination only issues neither pleaded nor tried but which appear to make the mark of an applicant unregistrable.

Section 2.132(a) changes the practice under existing §2.132(a) by eliminating the step of having the TTAB issue an order to the plaintiff to show cause why judgment should not be entered against him. Under amended §2.132(a), the plaintiff will have fifteen days from the date of service of the defendant's motion for dismissal within which to show cause why judgment should not be rendered against the plaintiff.

Section 2.132(b) clarifies existing §2.132(b).

Section 2.134(a) codifies the practice under existing §2.134 that the written consent of the adverse party is required to avoid judgment against a cancellation respondent who applies to cancel his registration under section 7(d) of the Act of 1946 while the registration is involved in a proceeding.

Section 2.134(b) provides that, after the commencement of a cancellation proceeding, if it comes to the attention of the TTAB that a respondent (registrant) has permitted his registration to be cancelled under section 8 of the Act of 1946 or has failed to renew his registration under section 9 of the Act, an order may be issued allowing respondent until a set time in which to show cause why the resulting demise of the registration should not be deemed to be the equivalent of a cancellation of the registration by request of the repondent without the written consent of the adverse party and should not result in entry of judgment against the respondent; and that, in the absence of a showing of good and sufficient cause, judgment may be entered against respondent. Section 2.134(b) is added to avoid situations where a respondent in a cancellation proceeding may moot the case and avoid judgment because of the fortuitous circumstance that his registration happens to reach its sixth anniversary or twentieth anniversary while a proceeding is pending and the respondent exploits this situation by simply failing to file an affidavit under section 8 of the Act or a renewal application under section 9 of the Act.

Section 2.135 codifies the practice under existing §2.135, which is parallel to the practice under existing §2.134 and final §2.134(a), that the written consent of the adverse party is required to avoid judgment against an applicant who abandons his application or mark while the application is involved in an opposition, concurrent use or interference proceeding. It should be noted that existing §2.135 begins, "If, in a proceeding, an applicant * * *", but that the section as proposed referred only to "an opposition proceeding". The narrowing of the application of the rule in the section as proposed was an inadvertent error. In order to correct the error, the proposal to revise the section to include only a reference to an opposition proceeding is withdrawn. The wording of the beginning of final §2.135, namely, "After commencement of an opposition, concurrent use, or interference proceeding, if the applicant * * *", is legally equivalent to the beginning of existing §2.135.

Section 2.142(a) clarifies existing §2.142(a).

Section 2.142(b) requires the examiner to file with the TTAB a brief answering the appellant's brief and requires the examiner to file the brief within sixty days after appellant's brief is sent to the examiner by the TTAB. Section 2.142(b) as proposed required that the examiner's brief (referred to therein as a "statement") answer "every point in" the appellant's brief, whereas existing §2.142(b) requires only that the examiner furnish a written statement "In answer to" appellant's brief. Upon further consideration, the proposal to modify §2.142(b) to require that the examiner's brief answer "every point in" the appellant's brief is withdrawn since it is likely to result in briefs which are unduly lengthy. An appellant's brief may contain points which are so insignificant, immaterial, etc. as to require no response.

Section 2.142(c) codifies the practice that all requirements made by the examiner and not the subject of appeal shall be complied with prior to the filing of an

appeal.

Section 2.142(d) provides that the record in the application should be complete prior to the filing of an appeal, states that the TTAB will ordinarily not consider additional evidence filed with the TTAB by the appellant or by the examiner after an appeal is filed, and provides that either the appellant or the examiner may request the TTAB to suspend the appeal and remand the application for further examination if the appellant or the examiner desires to introduce additional evidence.

Section 2.142(e)(1) amends existing §2.142(c), and codifies the practice under the existing rule, by changing the due date for a request for an oral hearing on an appeal from the date when the appellant's brief is filed to a date ten days after the due date for a reply brief.

Section 2.142(e)(2) requires the examiner to present an oral argument if an oral argument is requested by the appellant.

Section 2.142(e)(3) allots twenty minutes to the appellant for oral argument and ten minutes to the examiner for oral argument.

Section 2.142(f) provides for situations where, during an appeal, it appears to the TTAB that an issue not previously raised may render the mark of the appellant unregistrable, that is, when something on the face of the record on appeal indicates that a question concerning the registrability of the mark may exist but has not been considered. The paragraph provides the procedure to be followed by the TTAB, the Examiner, and the appellant when the TTAB suspends an appeal and remands an application on the TTAB's own initiative. The paragraph as amended includes certain words, namely, "to be completed", appearing in the phrase "and remand the application to the examiner for further examination to be completed within thirty days", which were not included in the paragraph as proposed. The words have been added in order to further clarify the intent of the paragraph and are not considered to result in a material alteration thereof. Further, for the reason indicated in connection with §2.142(b), the words "every point in" have been omitted from §2.142(f)(4).

Section 2.146 collects in one section the rules on petitions to the Commissioner in existing §§2.146, 2.147, and part of §2.148. For this reason existing §2.147 is removed. In the notice of proposed rulemaking, it was also proposed that existing §2.148 be deleted. The reason for the proposal was a belief that the entire substance of §2.148 was incorporated in proposed §2.146(a)(5), which provides that petition may be taken to the Commissioner in any extraordinary situation, when justice requires and no other party is injured thereby, to request a suspension or waiver of any requirement of the rules not being a requirement of the Act of 1946. However, existing §2.148 provides that in an extraordinary situation, when justice requires and no other party is injured thereby, any requirement of the rules not being a requirement of the statute may be suspended or waived by the Commissioner. That rule is not limited to waiver petition but rather also encompasses waiver upon the Commissioner's own initiative. Inasmuch as the entire substance of existing §2.148 is not incorporated in proposed and final §2.146(a)(5), the proposal to remove §2.148 is withdrawn.

Section 2.146(a) reflects the change in §2.63(b) permitting petitions concerning some requirements which have been made final.

Section 2.146(b) delineates classes of questions which are not considered to be appropriate subject matter for petitions to the Commissioner. These questions are substantive issues of registrability of marks and are considered to be appropriate for appeal to the TTAB. Section 2.146(b) as proposed read "Questions arising under Sections 2, 3, 4, 5, 6 and 23 of the Trademark Act during the ex parte prosecution of applications are not considered to be appropriate subject matter for petitions to the Commissioner", whereas paragraph (b) as adopted herein reads "Questions of substance arising during the ex parte prosecution applications, including, but not limited to, questions arising of under Sections 2, 3, 4, 5, 6 and 23 of the Act of 1946, are not considered to be appropriate subject matter for petitions to the Commissioner." The wording of the paragraph has been modified for purposes of clarification, and such modification is not considered to result in a material alteration of the paragraph.

Section 2.146(c) specifies the contents of a petition of the Commissioner, and in this respect clarifies requirements previously included in §2.146(b).

Section 2.146(d) specifies the time limit for filing a petition on any matter not otherwise specifically provided for. In proposed §2.146(d), an attempt was made to list the matters otherwise specifically provided for. However, several matters were inadvertently omitted. In order to ensure that the rule is correct, the list has been omitted from the final rule.

Section 2.146(e) provides time limits and specifies the procedure for a petition to the Commissioner from the denial of a request for an extension of time to file an opposition or from an interlocutory order of the TTAB. Section 2.146(e)(1) contains a new requirement that a petition from the denial of a request for an extension of time to oppose must be served on the applicant or his attorney and provides for a response by the applicant to the petition.

Section 2.146(f) clarifies a provision previously included in §2.146(c).

Section 2.146(g) clarifies and codifies the practice previously under §2.146(d) and, in addition, makes §2.146 consistent with §§2.63(b) and 2.65, as adopted herein.

Section 2.146(h) codifies the practice previously under §2.146(e) whereby authority to act on classes of petitions, in addition to any particular petition, may be delegated.

Paragraphs (a), (b), and (c) of §2.165 specify the procedure when the affidavit or declaration filed under section 8 of the Act of 1946 is refused. The steps to be taken by the registrant to request reconsideration and to petition to the Commissioner and the time limits for such requests and petitions are stated.

Section 2.165(d) states that a petition to the Commissioner for review of the action refusing the affidavit or declaration under section 8 of the Act of 1946 shall be a condition precedent to an appeal to or action for review by any court. This implements section 21 (a)(1) and (b)(1) of the Act, which provides, inter alia, that a registrant who has filed an affidavit under section 8 of the Act who is dissatisfied with the decision of the Commissioner may appeal to the U.S. Court of Appeals for the Federal Circuit or may have remedy by a civil action.

Section 2.173(b) clarifies the circumstances in which an amendment of the identification of goods or services of a registration is permitted. The rule states that an identification of goods or services can be restricted or can be otherwise changed in ways that would not require republication of the mark.

Paragraphs (a), (b), and (c) of §2.184 specify procedures and time limits for relief when an application for renewal of the registration under section 9 of the Act of 1946 is refused, in parallel with final §2.165.

Section 2.184(d) is parallel to final §2.165(d) and has the same statutory basis.

Section 2.186 clarifies and codifies the practice under existing §2.186 that action with respect to an assigned application or registration may be taken by the assignee provided that the assignment has been recorded.

Response to Comments on the Rules

The written comments and oral testimony offered in response to the notice of proposed rulemaking published in the **Federal Register** on June 29, 1982 have been given careful consideration, and a substantial number of the suggested modifications have been adopted. The comments and responses (except those pertaining to §§2.101, 2.102, 2.103, 2.111, and 2.112, which were included in the final rule notice published in the **Federal Register** on Jan. 28, 1983 at 48 FR 3972) appear below:

Comment: In response to the proposal to amend §2.20 by adding a new paragraph (b) to codify a particular

practice relating to the verification of oppositions and petitions for cancellation, one organization noted that the question of verification of oppositions and petitions for cancellation appeared to be moot in view of Pub. L. 97-247; indicated its belief, with respect to the phrase "person who is authorized to sign" in proposed §2.20(b), that the rules pertaining to oppositions and petitions for cancellation should be amended to require that when an opposition or petition for cancellation is signed on behalf of a corporation or an association by a person who is authorized to sign the document but who is not an officer, the person must represent that he has such authority; and submitted its proposal for a substitute §2.20 (modeled on the corresponding patent rule, §1.68) which is broader in scope than present §2.20.

Response: Inasmuch as Pub. L. 97-247 has amended the Trademark Act of 1946 so as to eliminate the requirement for verification of oppositions and petitions for cancellation, the proposal to amend §2.20 by adding a new paragraph (b) relating to verification of oppositions and petitions for cancellation has been withdrawn. The other two suggestions involve substantive rule changes which are outside the scope of the proposed rule changes as published and hence cannot be adopted without affording members of the public an opportunity to comment thereon. However, these suggestions will be considered in connection with any future proposals to amend the rules in question. In this regard, it should be noted that when an opposition or petition for cancellation is signed by a person whose authority to sign is not apparent, it is the practice of the Trademark Trial and Appeal Board to inquire as to that person's authority to sign.

Comment: One organization suggested that the word "Anything" be substituted in proposed §2.27(e) for the phrase "Any documents, tangible things, answer to interrogatories, or all or any part of any discovery or testimonial deposition transcripts" because the attempt to list all of the types of things subjected to the rule might invite disputes as to whether particular items are covered. The same organization suggested that the following sentence be added to paragraph (e): "When possible, only confidential portions of filings with the Board shall be filed under seal."

Response: The paragraph has been modified as suggested.

Comment: One organization and three members of another organization suggested that proposed §2.64(b), which concerns requests for reconsideration after final action by the examiner, be modified to require that any request for reconsideration filed within three months of the final action be responded to by the examining attorney before the time for appeal.

Response: The six-month period for appealing from a final refusal of registration, or for complying with a requirement which has been made final, or for petitioning the Commissioner [if permitted by §2.63(b)] with respect to such a requirement, is statutory, and the Patent and Trademark Office cannot guarantee that any request for reconsideration filed within three months of the final action will be responded to by the examining attorney before the time for appeal. However, the paragraph has been modified to provide that normally the examiner will reply to a request for reconsideration before the end of the six-month period if the request is filed within three months after the date of the final action.

Comment: Two organizations expressed disapproval of the final sentence of proposed §2.64(b), which reads: "Amendments accompanying requests for reconsideration after final action will be entered if they place the application in condition for publication or in better form for appeal." The organizations criticized this provision as being unduly restrictive and vague, and suggested that the subsection be modified to permit any amendment that complies to the Trademark Act of 1946 and the Rules of Practice in Trademark Cases.

Response: The paragraph has been modified as suggested.

Comment: One organization suggested that proposed §2.65(a), which includes a reference to proposed §2.63(b), be modified to include also a reference to proposed §2.146, for the asserted reason that if reference is made to other sections of the rules, the reference should include all the most pertinent rules.

Response: The Paragraph has been modified as suggested.

Comment: Two organizations urged with respect to proposed §2.65(b) (which concerns the filing of an incomplete response to an examiner's action), that the word "may" in the clause "opportunity to explain and supply the omission may be given before the question of abandonment is considered" be changed to "shall".

Response: The suggestion has not been adopted. A requirement that an opportunity to explain and supply an omission be given in every case would result in a significant increase in the work load of the Trademark Examining Operation and hence an undue burden upon the Patent and Trademark Office. Accordingly, the word "may" has been retained in the final paragraph so as to leave the Trademark Examining Attorney with the descretion to determine whether such an opportunity should be given, depending upon the nature of the omission. The final paragraph parallels corresponding patent §1.135(c).

Comment: One member of one of the organizations commented that as a result of the proposed revision of §2.72 (which would allow non-material changes in the drawing of a mark to be supported by specimens which were not necessarily in use at the time the original application was filed), an applicant might amend its mark sought to be registered in order to overcome a reference under section 2(d) of the Trademark Act of 1946.

Response: The proposed revision might well have the result suggested in the comment, and an amendment for such a purpose would not be wrong, in and of itself. However, upon further consideration it appears that the proposed revision might result in so many amendments to marks as to constitute a burden upon the Patent and Trademark Office. Accordingly, the proposal to revise §2.72 in the manner described above is withdrawn. A second proposal to change the last sentence of §2.72 from "Amendments may not be made if the nature of the mark is changed thereby." to "Amendments may not be made if the character of the mark is materially altered.", so that the standard for amendment will be the same as the standard for amendment of registered marks (see section 7(d) of the Act of 1946), is adopted.

Comment: One organization commented, with respect to proposed §2.81, that there is a typographical error in the first line of the section, namely, that "with" should be "within." Another organization noted certain errors in the corrections to proposed §2.121(b)(1) and (c) published in the **Federal Register** at 47 FR 32955.

Response: The noted errors were made in printing. They do not appear in the original text of the notice of proposed rulemaking which was prepared and retained by the Patent and Trademark Office.

Comment: One individual, one organization, and one member of another organization expressed their belief that the second sentence in proposed §2.99(a) (which states, "The examiner may require an applicant for registration as a concurrent user to make a prima facie showing that the applicant is entitled to a concurrent use registration") is too vague to be of help in drafting a concurrent use application, and suggested that this portion of the paragraph either be deleted or made more specific.

Response: Upon further consideration, it appears that the subject matter of this portion of the subsection should be developed either through decisional law or in the Trademark Manual of Examining Procedure. Accordingly, the sentence has been deleted.

Comment: Proposed §2.99(f) lists the conditions which must be met when an applicant seeks to obtain a concurrent use registration under the provisions of section 2(d) of the Act of 1946 based on a court decree, without the necessity of a concurrent use proceeding in the Patent and Trademark Office. One organization urged that the

fifth condition (which states: "the excepted use specified in the concurrent use application does not involve a registration") be deleted for the reason that it is vague and, in any event, inappropriate where the registration involved was otherwise before the court.

Response: When the excepted use specified in a concurrent use application based on a court decree involves an unrestricted registration, a concurrent use registration proceeding must be instituted in order that the Trademark Trial and Appeal Board may restrict the registration in accordance with the court decree. In such cases, the concurrent use registration proceeding does not go forward to trial but rather is terminated on the basis of the court decree immediately after institution of the proceeding. However, if the registration has been restricted by the Commissioner in accordance with the court decree, and the other conditions listed in paragraph (f) have been met, there is ordinarily no need for a concurrent use registration proceeding. Accordingly, paragraph (f) has been modified to read: "the excepted use specified in the concurrent use application does not involve a registration, or any involved registration has been restricted by the Commissioner in accordance with the court decree."

Comment: One organization noted that in §§2.104 and 2.105, as proposed, the term "opposition", when used to refer to the complaint in an opposition proceeding, has been changed to "notice of opposition". The organization expressed its belief that there is no reason for reverting to the phrase "notice of opposition" except tradition, and that that phrase is confusingly similar to the phrase "notification of opposition".

Response: The proposal to change "opposition" to "notice of opposition" in certain instances has not been adopted.

Comment: One organization commented that proposed §2.113 should be modified to indicate that the effective filing date of a petition for cancellation will be the date that the statutory requirements, including payment of the required fee(s), are satisfied. The organization indicated that it was concerned here and elsewhere (see comment and response pertaining to §2.111 in the final rule notice published in the **Federal Register** on Jan. 28, 1983 at 48 FR 3972) about cases in which an incomplete filing is made within five years of the date of registration and not perfected until the five-year period of section 14(a) of the Act of 1946 has passed. The organization also suggested that the section be modified to include a cross-reference to existing §2.118, which pertains to undelivered notifications.

Response: The section has been modified to include a cross-reference to §2.118. Additionally, the first clause in the section, which as proposed read "When a petition for cancellation has been filed in proper form and the correct fee(s) have been submitted,", has been modified by the inclusion of a cross-reference to §§2.111 and 2.112 and by the deletion of the words "and the correct fee(s) have been submitted,", so that the modified clause reads "When a petition for cancellation has been filed in proper form (see §§2.111 and 2.112),". Section 2.111, as amended effective Feb. 27, 1983 (see the final rule notice published in the **Federal Register** on Jan. 28, 1983 at 47 FR 3972) provides in effect that the filing date of a petition for cancellation with respect to each named party petitioner and each class sought to be cancelled is the date of receipt in the Patent and Trademark Office of the petition together with the required fee for that party petitioner and class, and that is those cases where the five-year limitation of sections 14 (a) and (b) of the Acts of 1946 is applicable, the petition and required fee(s) must be filed prior to the expiration of the five-year period. Section 2.112, as amended effective Feb. 27, 1983, pertains to the proper form for a petition for cancellation.

Comment: One organization stated, with respect to proposed §2.117(b), that it failed to appreciate the necessity for requiring that issue be joined in both the civil action and the proceeding in the Patent and Trademark Office before the Trademark Trial and Appeal Board will consider suspension of the Board proceeding pending the outcome of the civil action. The organization also noted that the retained paragraph of §2.117 needs a paragraph reference, i.e., "(a)".

Response: The retained paragraph of §2.117 has designated been "a". Insofar as proposed paragraph (b) is concerned, it is not in fact the practice of the Board to require that issue be joined in the civil action before suspension of the Board proceeding will be considered [see Tokaido v. Honda Associates, Inc., 179 USPQ (TTAB 1973)]. Moreover, while it may not be possible in some cases to determine whether a civil action is likely to be determinative of a proceeding before the Board until an answer has been filed in one or both proceedings, in other cases it is feasible and advantangeous to suspend prior to answer. Accordingly, proposed §2.117(b) has been withdrawn, and proposed paragraphs (c) and (d) have been redesignated (b) and (c).

Comment: One organization suggested that suspension be considered automatic upon the showing of the institution of a civil action between the parties provided that the party in the position of plaintiff in the Board proceeding has neither commenced taking testimony nor filed any evidence in such proceeding.

Response: It is the normal practice of the Board to suspend under the circumstances outlined in the comment if it appears that the civil action may be dispositive of the proceeding before the Board. However, even under these circumstances there are times when it may be desirable to go forward with the Board proceeding, as, for example, when the civil court has a large backlog or suspends its own action pending the final determination of the Board proceeding. Accordingly, it is believed that the matter of suspension should be left to the discretion of the Board, and the suggested amendment has not been adopted.

Comment: With respect to §2.117(b) [identified in the notice of proposed rulemaking as §2.117(c)], which as proposed reads "Whenever there is pending, at the time when the question of the suspension of proceedings is raised, a motion which is potentially dispositive of the case, the motion will be decided before the question of suspension will be considered.", one organization and two members of another organization suggested that the phrase "the motion will be decided" be changed to "the motion may be decided", so that the Board will have the discretion to either suspend or rule in such a case, and will not be compelled to determine the motion before it if, for example, a similar motion is pending in the civil action.

Response: The paragraph has been modified in accordance with this suggestion.

Comment: Four members of one organization objected to proposed §2.120(c)(2) (which provides in effect that whenever a foreign party or its officers, etc., is or will be in the United States during a discovery period, such party may be deposed in the United States by oral examination upon notice by the party seeking discovery.) The reason given for the objection was that the foreign officer could be seriously inconvenienced because of the proposed rule, which invites abuse.

Response: While it is true that a foreign officer who is traveling in the United States on other business might find it inconvenient to have his oral discovery deposition taken, it is equally true that there are instances in which it is inconvenient for a domestic officer to have his oral deposition taken. Further, there can be no doubt that the oral deposition is a far better discovery device than the deposition upon written questions. It is believed that the advantages offered by the oral deposition outweigh the disadvantage of possible inconvenience. Accordingly, proposed §2.120(c)(2) is being adopted herein as a final rule.

Comment: With respect to proposed §2.120(d), which provides for the production of documents, in response to a request for production of documents, at the place where the documents are usually kept, or where the parties agree, or where and in the manner which the Trademark Trial and Appeal Board, upon motion, or-

ders, one individual suggested that the paragraph be modified to require that the party upon which the request is served respond to the request by sending copies of all documents requested to the party making the request.

Response: The purpose of §2.120(d) is to permit the Board, upon motion, to order that a party produce requested documents by photocopying and mailing them to the requesting party at the latter's expense. However, inasmuch as there are cases in which some other manner of production is more appropriate or feasible, the manner of production is a matter which is better left to the discretion of the Board. Accordingly, the suggestion has not been adopted.

Comment: One individual suggested that proposed §2.120(e), which concerns motions to compel discovery, be modified to provide that if counsel for the parties reach an agreement relating to a disputed discovery matter, a motion may be brought to enforce the agreement.

Response: Inasmuch as it is not the function of the Board to enforce agreements between parties, this suggestion has not been adopted. However, a party may always argue the existence of such an agreement as a factor bearing on the merits of a motion to compel discovery.

Comment: With respect to proposed §2.120(i) (which provides, in essence, that the Board may at its discretion request that the parties come to its offices for a pre-trial conference when pre-trial questions or issues have been so complex that their resolution by correspondence or telephone conference is not practical), one individual, noting that the paragraph provides for a pre-trial conference at the Board's option and discretion, suggested that the paragraph be modified to indicate that such a conference may also be requested by a party to a proceeding but that the Board be left with the discretion to grant the request. The same individual also suggested that the paragraph, which as proposed contains only a passing reference to a "telephone conference", be broken into two parts, the first being devoted to the telphone conference (with provision therefor at the option of the Board or at the request of a party to a proceeding, but again leaving the Board with discretion to grant the request), and the second being devoted to the pre-trial conference. The individual expressed his belief that attorneys should be made aware of the telephone conference procedure since it can be very useful to them as well as to the Board.

Response: The paragraph has been modified as suggested to include two paragraphs and to provide that the Board may utilize the telephone and pre-trial conference procedures either upon its own initiative or upon request made by one or both of the parties. Although neither of the new paragraphs contains the words "at its discretion," both contain the words "the Board may," which clearly indicate that the utilization of these procedures is a matter which is left to the discretion of the Board.

Comment: A number of comments were received with respect to proposed §2.120(j), which pertains to the use of discovery depositions, admissions, or answers to interrogatories. Two organizations noted that proposed §2.120(j)(2) (which incorporates the "fairness exception" of Rule 32(a)(4) of the Federal Rules of Civil Procedure ("F.R.C.P.") apparently limits the use of discovery depositions only to the inquiring party, while Rule 32(a)(4) F.R.C.P. allows the use of the deposition for any purpose by either party once the adverse party has relied upon any part of it. These organizations recommended that the paragraph be modified to follow Rule 32(a)(4) F.R.C.P. One organization objected to proposed §2.120(j)(3) (which permits the introduction into evidence on motion of the discovery deposition of a non-party under certain circumstances provided that the motion is filed promptly after the circumstances claimed to justify use of the deposition become known) on the ground that the timing requirement for the motion is unnecessary and unduly restrictive and that the better practice would be to let the motion be filed at the time of the purported offer of the deposition into evidence. Another organization recommended that consideration be given to permitting much greater use of non-party discovery depositions than permitted by proposed §2.120(j)(3), or at least that the burden imposed by the last of the listed instances in which such depositions may be introduced into evidence, namely, "upon a showing of extraordinary circumstances and necessity in the interest of justice", should be lessened. Three members of one organization commented that any party, not just the deposing party, should be able to make a discovery deposition of record if its use at trial is permitted by Rule 32 F.R.C.P. Finally, one individual noted that proposed §2.120(j), which permits only the inquiring party to introduce a discovery deposition into evidence (unless the "fairness exception" applies), conflicts with Rule 32(a)(2) F.R.C.P., which provides that a deposition of a party "may be used by an adverse party for any purpose", and with Rule 32(a)(3) F.R.C.P., which provides that the deposition of "a witness, whether or not a party, may be used by any party for any purpose" in the limited circumstances corresponding to those set forth in proposed §2.120(j)(3) (except for the 100-mile exception, which is not applicable to proceedings before the Trademark Trial and Appeal Board). This individual submitted a suggested alternative text for §2.120(j) which conforms to Rule 32(a) F.R.C.P. by (a) eliminating the restriction in proposed §2.120(j)(1) and (2) that only the inquiring party may offer a discovery deposition in evidence, and (b) broadening proposed §2.120(j)(2) to cover any "witness, whether or not a party". In the suggested text, paragraphs (1)–(3) of proposed §2.120(j) are also reorganzied and rearranged for clarity.

Response: The text suggested by the individual has been adopted with certain modifications in order to resolve the conflicts and objections noted by this individual and others, as outlined above. In the final paragraph, the text of §2.120(j)(1) follows the text of Rule 32(a)(2) F.R.C.P. The text of the discovery deposition "fairness exception", which appears in final §2.120(j)(4), is essentially the same as the text of Rule 32(a)(4) F.R.C.P. The provision relating to the introduction into evidence, by order of the Board upon motion, of the discovery deposition of a non-party under certain circumstances [which appears in final §2.120(j)(2)] has been broadened to permit the introduction, by order of the Board upon motion, of the discovery deposition of a witness, whether or not a party, by any party under the stated circumstances. The final such circumstance, which in the proposed paragraph read "upon a showing of extraordinary circumstances and necessity in the interest of justice", has been modified to read "upon a showing that such exceptional circumstances exist as to make it desirable, in the interest of justice, to allow the deposition to be used," which closely follows the wording of Rule 32(a)(3) F.R.C.P. The timing requirement for a motion filed under the paragraph has been changed from "filed promptly after the circumstances claimed to justify use of the deposition became known" to "filed at the time of the purported offer of the deposition in evidence" for all such motions except those based upon a claim of exceptional circumstances. In the latter instance, the proposed timing requirement, namely, "filed promptly after the circumstances claimed to justify use of the deposition became known", has been retained in the final rule for two reasons; first, to provide an adverse party with the best possible opportunity to investigate the claim of exceptional circumstances, and second, so that in those cases where the circumstances become known prior to the taking of the deposition, the motion will be filed, and hence can be determined, before the deposition is taken. Finally, in order to make it clear that once a discovery deposition, or a part thereof, or an answer to an interrogatory, or an admission, has been properly made of record by one party, it may be referred to by any party for any purpose permitted by the Federal Rules of Evidence, a provision to that effect, identified as paragraph (j)(7), has been included in the final paragraph.

Comment: With respect to proposed §2.122(c)(2)

(which provides that a registration owned by a party to a proceeding may be made of record by that party by filing a notice of reliance accompanied by a certified copy of the registration showing current status and title), two organizations and three members of another organization objected to the requirement for certification of the status and title copies as being unnecessary, expensive, and unduly harsh. One of these organizations, noting that proposed §2.122 is modified to eliminate the practice set forth in existing §2.122(b) (which provides that a registration of an opposer or petitioner pleaded in an opposition or petition to cancel will be received in evidence and made part of the record if two copies showing status and title of the registration or an order for such copies accompany the opposition or petition), expressed its belief that, accepting the Patent and Trademark Office's position that the practice set forth in existing §2.122(b) has caused delays and problems for the Office, still there is no reason for requiring that the status and title copies of the registration be certified when made of record, pursuant to proposed §2.120(c)(2), by the filing of a notice of reliance during the testimony period of the party filing the notice.

Response: The proposal to require that status and title copies of registrations also be certified has not been adopted herein. Further, since the only part of existing §2.122(b) which caused trouble was the provision involving the submission of an *order* for status and title copies with the complaint, the proposal to modify existing §2.122 by eliminating that provision is adopted herein, but the proposal to eliminate the provision involving the submission of actual status and title copies with the complaint is withdrawn. Hence, final §2.122 provides, in paragraph (d)(1), that a registration of the opposer or petitioner pleaded in an opposition or petition to cancel will be received in evidence and made part of the record if the opposition or petition is accompanied by two copies of the registration prepared and issued by the Patent and Trademark Office showing both the current status of and current title to the registration.

Comment: One organization suggested that the word "competent" should be inserted before the word "evidence" in two (unspecified) places in proposed §2.122(b)(2) and in one place in proposed §2.122(b)(3), and that the first clause in proposed §2.122(c)(2) be changed from "A registration owned by any party to a proceeding may be made of record in the proceeding by that party by filing a notice of reliance," to "A registration owned by any party to a proceeding may be made of record in the proceeding by that party by appropriate identification and introduction during the proper testimony period or by filing a notice of reliance,". The same organization also submitted a suggested plan for reorganizing proposed §2.122 and for giving each paragraph therein a heading. Three members of another organization expressed their agreement with these suggestions.

Response: The suggested plan for reorganization and for headings has been adopted herein with certain minor modifications necessitated by the response to the foregoing comment (e.g., the comment concerning the introduction of registrations in evidence).

The word "competent" has been inserted before the word "evidence" only once in final §2.122(b)(2) and not at all in final §2.122(c) [identified in the notice of proposed rulemaking as §2.122(b)(3)]. The clauses in these paragraphs were the word "competent" might have been, but was not, inserted before the word "evidence" read "The allegation in an application for registration, or in a registration, of a date of use is not evidence on behalf of the applicant or registrant;"; "Specimens in the file of an application for registration, or in the file of a registrant, are not evidence on behalf of the applicant or registrant * * *"; and "An exhibit attached to a pleading is not evidence on behalf of the party to whose pleading the exhibit is attached * * *" The reason why the word "competent" was not inserted in these instances is that in each one the matter in question is not evidence *on behalf of the named party* at all (although specimens, or the allegation of a date of use, for example, may be used as evidence against an applicant or registrant, e.g., as an admission against interest).

Finally, the first clause in proposed §2.122(c)(2) [identified herein as §2.122(d)(2)] has been modified to read "A registration owned by any party to a proceeding may be made of record in the proceeding by that party by appropriate identification and introduction during the taking of testimony or by filing a notice of reliance."There is a slight difference between the clause as adopted and the clause as suggested by the organization (the organization's suggested wording "during the proper testimony period" has been changed to "during the taking of testimony"). The change in the wording was made so that it would be clear that this portion refers to identification and introduction during the taking of testimony as distinguished from identification and introduction by notice of reliance. This change is not to be construed as an indication that such identification and introduction does not have to be made "during the proper testimony period"; with the deception of status and title copies of a plaintiff's pleaded registration submitted with the complaint, any evidence which a party offers on the case must be offered during the proper testimony period.

Comment: With respect to proposed §2.123(a)(1) (which provides, inter alia, that if a party serves notice of the taking of a testimonial deposition upon written questions of a witness within the United States, any adverse party may, within fifteen days from the date of service of the notice, file a motion with the Trademark Trial and Appeal Board, for good cause, for an order that the deposition be taken by oral examination), one individual, noting that the procedure for taking testimony by written questions is unsatisfactory and often frustrating, suggested that the paragraph be changed to require that a party seeking to utilize this procedure (in lieu of an oral examination) file a motion requesting, for good cause shown, permission to by-pass the oral examination of its witness, that is, that the burden of filing a motion and showing good cause be shifted to the party who wants to take testimony upon written questions.

Response: If the burden of filing the motion were shifted in the manner suggested, the Trademark Trial and Appeal Board would have to rule on a motion in every case where a party desires to take testimony by written questions. Under the rule as proposed, the Board would have to rule on a motion only in those cases where one party desires to take testimony by written questions and the adverse party objects to the use of this procedure in lieu of an oral depositon. Often, the adverse party does not object. Moreover, Rule 31 F.R.C.P., which provides for the use of depositions upon written questions in federal district courts, does not require that a party who wishes to use this procedure file a motion requesting permission to do so. Accordingly, this suggestion has not been adopted.

Comment: Two organizations commented that proposed paragraphs (j) and (k) of §2.123, which relate to the raising of objections to testimony depositions taken in inter partes proceedings, appear to be inconsistent and unclear as to the timing of objections. Both organizations suggested that the paragraphs be modified to rely upon the pertinent portion of the Federal Rules of Civil Procedure, namely, Rule 32(d)(3). Similarly, one individual commented that proposed paragraph (k) is ambiguous as to the timing of an objection to testimony based upon lack of competency of the witness.

Response: In order to improve their consistency and clarity, the paragraphs have been modified as suggested. It should be noted that the result of the modification of paragraph (j) is that if a party fails to attend the taking of a deposition, he thereby waives any objection which under Rule 32(d)(3)(A) and (B) F.R.C.P. is deemed to be waived if not made at the taking of the deposition. This is a significant change from existing §2.123(j), which permits the raising of formal or technical objections as soon as a party becomes aware of them, e.g., in the case of a party who did not attend the taking of a

deposition, at the time when such party receives a copy of a transcript of the deposition.

Comment: With respect to the same paragraphs, one individual suggested that the Trademark Trial and Appeal Board entertain and determine, prior to the briefing period, motions to strike testimony, so that parties to a proceeding before the Board will know exactly what is in the record when they write their briefs.

Response: The adoption of this suggestion would put an intolerable burden on the Board because the Board would have to read testimony depositions both at the time of determination of a motion to strike them and again at final hearing. It is the longstanding policy of the Board not to read trial testimony taken in a proceeding before it, or to examine other evidence offered by the parties in support of their respective cases, until final hearing,. See, for example: *Curtice-Burns, Inc.* v. *Northwest Sanitation Products, Inc.*, 182 USPQ 572 (Comr. 1974), and *Clairol Inc.* v. *Holland Hall Products, Inc.*, 161 USPQ 616 (TTAB 1969). Accordingly, the suggestion has not been adopted.

Comment: With respect to proposed §2.124(d)(2) (which provides in part that when one or more testimonial depositions are to be taken upon written questions, the Trademark Trial and Appeal Board may suspend or reschedule other proceedings in the matter to allow for the orderly completion of the depositions upon written questions), one individual expressed his belief that when the Board receives notice that a deposition is to be taken upon written questions, it should immediately suspend proceedings for a sixty-day period to allow for the completion of the deposition, thereby avoiding unnecessary motions to extend the trial periods.

Response: The paragraph has been modified to provide that in such situations the Board "shall" suspend or reschedule other proceedings in the matter to allow for the orderly completion of the deposition. The length of the suspension has been left to the discretion of the Board since the time required to complete the taking of a deposition upon written questions varies according to the place where the witness is located.

Comment: One organization, noting that the words "the letter" in proposed §2.124(e) have no antecedent and hence create an unnecessary ambiguity, suggested that the words "the notice and of all of the questions mailed" be substituted therefor. With respect to the statement in proposed §2.124(f) that it is the responsibility of the party who takes a deposition upon written questions to assure that the transcript is correct, the same organization suggested that the paragraph be modified to include a cross-reference to proposed §2.125(b), which specifies procedures for correcting transcripts.

Response: The paragraphs have been modified as suggested.

Comment: With respect to proposed §§2.27(e), 2.120(f), and 2.125(e), which relate to the provision, in inter partes proceedings before the Trademark Trial and Appeal Board, of certain types of discovery information, and the submission of certain types of trial evidence, under protective order, one individual commented that the proposed rules would appear to permit parties to keep virtually all relevant information confidential from the public at large.

Response: Under the rules as proposed and adopted, only trade secrets and confidential information are held under seal and kept confidential by the Board. Very little of the evidence offered in inter partes proceedings before the Trademark Trial and Appeal Board is of this nature.

Comment: Two organizations objected to proposed §2.128(a)(3) (which provides in essence that when a party fails to file a brief on the case, the Trademark Trial and Appeal Board may treat such failure as a concession of the case) on the grounds that the proposed rule is unduly harsh; that it constitutes an abrogation of the Board's responsibility to decide cases on the record before it, regardless of the absence of briefs; that the granting or denial of a registration with its evidentiary presumptions is too important an issue to be decided on the basis of a presumed concession; and that a party who fails to file a brief should at least be given an opportunity to show cause why judgment should not be entered against him for such failure. Similarly, one member of another organization believes that the proposed rule would encourage the filing of spurious oppositions in cases where the opposer feels that the applicant may not be in a position to afford the legal fees required for preparing a brief.

Response: For the reasons indicated in the comments, proposed §2.128(a)(3) has been modified to refer only to the party in the position of plaintiff, and proposed §2.128(a)(1) has been modified to make it clear that the filing of a brief on the case is not mandatory for the party in the position of defendant. Further, the primary purpose of proposed §2.128(a)(3) was to save the Board the burden of determining cases of the merits in instances where the parties have settled, but have failed to inform the Board thereof, or where one party, particularly the plaintiff, has lost interest in the case. It is not the intention of the Board to enter judgment against a plaintiff for failure to file a brief on the case if the plaintiff still desires to obtain a determination of the case on the merits. Accordingly, proposed §2.128(a)(3) has been modified herein to provide an opportunity for the plaintiff who fails to file a main brief on the case to show cause why such failure should not be treated as a concession of the case. Additionally, the paragraph has been modified to indicate that judgment may be entered against a plaintiff for failure to file a main brief only if plaintiff fails to file a response to the order to show cause or files a response indicating that he has lost interest in the case.

Comment: One organization, noting that proposed §2.128(b) permits briefs to be filed on legal or letter size paper, suggested that since the federal courts now permit only the use of letter size paper, consideration should be given to requiring that briefs and all other formal papers filed in the Patent and Trademark Office by on letter size paper only. With respect to the same paragraph, one individual recommended, because of the different paper sizes permitted under the rule, that the rule be modified to specify the number of words that a brief can contain or, alternatively, to specify separately the number of pages permitted for briefs written on each size of paper. The same individual suggested that it should be made clear that the permitted number of pages in a brief does not include pages containing the index and the alphabetical list of cases.

Response: The paragraph has been modified to require that briefs be submitted on letter size paper. As to what is included within the specified page limitations, the paragraph as proposed and adopted states in part that "no brief shall contain more that fifty pages *of argument* and, in the case of a reply brief, *the entire brief* shall not exceed twenty-five pages" (emphasis added). It is believed that the paragraph as written clearly indicates that the fifty-page limitation for a main brief applies only to the length of the argument and does not include the index and case list pages, but that the twenty-five page limitation for a reply brief applies to the entire brief, e.g., argument, index, case list, and all. Accordingly, no further modification has been made.

Comment: With respect to proposed §2.134(b) (which provides that if the respondent in a cancellation proceeding permits his involved registration to be cancelled under section 8 of the Act of 1946 or fails to renew the registration under section 9 of the Act of 1946, such cancellation or failure to renew shall be deemed to be the equivalent of a cancellation by request of respondent without the consent of the adverse party and shall result in entry of judgment against respondent), two organizations commented that the judgment entered against a respondent under the proposed paragraph would have a res judicata effect; that the entry of such a judgment would be unduly harsh where the cancellation or expiration was the result of an inadvertence or mistake; and that, at a minimum, a respondent should be allowed to

"show cause" why such a judgment should be entered. Similarly one individual commented that in such situations, a respondent whose use of its registered mark has in fact been discontinued should be put in a position whereby it can terminate the dispute with prejudice only as to the ground of abandonment.

Response: The paragraph has been modified to provide an opportunity for the respondent in such situation to "show cause" why judgment should not be entered against it. If respondent submits a showing that the cancellation or expiration was the result of an inadvertence or mistake, judgment will not be entered against it. If respondent submits a showing that the cancellation or expiration was occasioned by the fact that its registered mark had been abondoned and that such abandonment was not made for purposes of avoiding the proceeding but rather was the result, for example, of a two-year period of nonuse which commenced well before respondent learned of the existence of the proceeding, judgment will be entered against it only and specifically on the ground of abandonment.

Comment: Apparently with respect to proposed §2.135 (which provides that after the commencement of an opposition proceeding, if applicant files a written abandonment of the application or of the mark without the written consent of every adverse party, judgment shall be entered against the applicant), one individual expressed his belief that if an applicant involved in an opposition were allowed to abandon its mark or application without the consent of the opposer without incurring entry of judgment against itself, more applicants would abandon, thus saving money for the Patent and Trademark Office.

Response: The purpose of §2.135 is to prevent an applicant involved in an opposition from abandoning its opposed application and then refiling, thus putting opposer (and the Patent and Trademark Office) to the expense of multiple proceedings. A rule to the contrary would be inequitable. Accordingly, §2.135 has not been modified in the manner suggested by this comment.

Comment: One individual questioned the necessity for the requirement in proposed §2.142(e)(2) that if the appellant in an ex parte proceeding requests an oral argument, the examiner who issued a refusal of registration or a requirement from which an appeal is taken, or in lieu thereof another examiner from the same examining division as designated by the supervisory attorney thereof, shall present an oral argument.

Response: The purpose of the requirement is to ensure that the examining attorney will be present at the oral hearing to respond to any new arguments raised by appellant and to answer any questions which the members of the panel assigned to hear the case may have. The examining attorney's oral argument need not be lengthy; if he (she) has nothing to add to what he (she) has already said in his (her) appeal brief, he (she) may simply say so.

Comment: With respect to the last sentence of proposed§2.165(a) (which states in essence that the certificate of mailing procedure provided by §1.8 does not apply to affidavits or declarations filed under section 8 (a) or (b) of the Act), one organization expressed its belief that the sentence should be deleted in light of H.R. 6260.

Response: H.R. 6260, which was enacted on Aug. 27, 1982 as Pub. L.97-247, amended 35 U.S.C. 21 to include a provision that the Commissioner may by rule prescribe that any paper or fee required to be filed in the Patent and Trademark Office will be considered filed in the Office on the date on which it was deposited with the United States Postal Service or would have been deposited with the United States Postal Service but for postal service interruptions or emergencies designated by the Commissioner. As a result thereof, a new section, §1.10, effective Feb. 27, 1983, has been added, by final rule notice published in the **Federal Register** on Jan. 20, 1983 at 48 FR 2696, to Part I of Title 37 CFR. The new section provides a procedure for assigning the date on which any paper or fee is deposited as "Express Mail" with the United States Postal Service as the filing date of the paper or fee in the Patent and Trademark Office. Inasmuch as this new section applies to "any paper or fee", it applies to affidavits or declarations filed under section 8 (a) or (b) of the Act of 1946. However, the §1.8 certificate of mailing procedure has not been eliminated, and that section still specifically provides that the procedure outlined therein does not apply to affidavits filed under section 8 (a) or (b) of the Act. In view thereof, the last sentence of §2.165(a) has been amended by the addition of a final clause, namely, "but the certificate of mailing by 'Express Mail' procedure provided by §1.10 does apply thereto."

Comment: One organization has submitted suggestions for changes to rules not involved herein.

Response: The suggested changes cannot be adopted without affording members of the public an opportunity to comment thereon. However, these suggestions will be considered in connection with any future proposals to amend the rules in question.

Environmental, energy and other considerations: The rule change will not have a significant impact on the quality of the human environment or the conservation of energy resources.

The rule change will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act, Pub. L. '96-354). The rule change includes no additional or increased fees. Substantive rights to use valuable trademarks are not adversely affected.

The rule change does not impose a record keeping or reporting burden under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 et seq. No additional information is required from the public. No additional records are required to be maintained by the Patent and Trademark Office because there are no additional fees or proceedings to monitor.

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291. The annual effect on the economy will be less than $100 million. There will be no major increases in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. There will be no significant, adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States based enterprises to compete with foreign based enterprises in domestic or export markets.

List of Subjects in 37 CFR Part 2

Administrative practice and procedures, Courts, Lawyers, Trademarks

Amendments of Regulations

After consideration of the comments received and pursuant to the authority contained in 15 U.S.C. 1123, Part 2 of Title 37 of the Code of Federal Regulations is amended as set forth below.

PART 2–RULES OF PRACTICE IN TRADEMARK CASES

1. Section 2.27 is amended by revising paragraphs (b) and (d) and adding paragraph (e) to read as follows:

§2.27 Pending trademark application index; access to applications.

* * * * *

(b) Except as provided in paragraph (e) of this section, access to the file of a particular pending application will be permitted prior to publication under §2.60 upon written request.

* * * * *

(d) Except as provided in paragraph (e) of this section, after a mark has been registered, or published for opposition, the file of the application and all proceedings relating thereto are available for public inspection and copies of the papers may be furnished upon paying the fee therefor.

(e) Anything ordered to be filed under seal pursuant to a protective order issued or made by any court or by the Trademark Trial and Appeal Board in any proceeding involving an application or a registration shall be kept confidential and shall not be made available for public inspection or copying unless otherwise ordered by the court or the Board, or unless the party protected by the order voluntarily discloses the matter subject thereto. When possible, only confidential portions of filing with the Board shall be filed under seal.

2. Section 2.63 is revised to read as follows:

§2.63 Reexamination.

(a) After response by the applicant, the application will be reexamined or reconsidered. If registration is again refused or any formal requirement(s) is repeated, but the examiner's action is not stated to be final, the applicant may respond again.

(b) After reexamination the applicant may respond by filing a timely petition to the Commissioner for relief from a formal requirement if: (1) The requirement is repeated, but the examiner's action is not made final, and the subject matter of the requirement is appropriate for petition to the Commissioner (see §2.146(b)); or (2) the examiner's action is made final and such action is limited to subject matter appropriate for petition to the Commissioner. If the petition is denied, the applicant shall have until six months from the date of the Office action which repeated the requirement or made it final or thirty days from the date of the decision on the petition, whichever date is later, to comply with the requirement. A formal requirement which is the subject of a petition decided by the Commissioner may not subsequently be the subject of an appeal to the Trademark Trial and Appeal Board.

3. Section 2.64 is revised to read as follows:

§2.64 Final Action.

(a) On the first or any subsequent reexamination or reconsideration the refusal of the registration or the insistence upon a requirement may be stated to be final, whereupon applicant's response is limited to an appeal, or to a compliance with any requirement, or to a petition to the Commissioner if permitted by §2.63(b).

(b) During the period between a final action and expiration of the time for filing an appeal, the applicant may request the examiner to reconsider the final action. The filing of a request for reconsideration will not extend the time for filing an appeal or petitioning the Commissioner, but normally the examiner will reply to a request for reconsideration before the end of the six-month period if the request is filed within three months after the date of the final action. Amendments accompanying requests for reconsideration after final action will be entered if they comply with the rules of practice in trademark cases and the Act of 1946.

4. Section 2.65 is revised to read as follows:

§2.65 Abandonment.

(a) If an applicant fails to respond, or to respond completely, within six months after the date an action is mailed, the application shall be deemed to have been abandoned. A timely petition to the Commissioner pursuant to §§2.63(b) and 2.146 is a response which avoids abandonment of an application.

(b) When action by the applicant filed within the six-month response period is a bona fide attempt to advance the examination of the application and is substantially a complete response to the examiner's action, but consideration of some matter or compliance with some requirement has been inadvertently omitted, opportunity to explain and supply the omission may be given before the question of abandonment is considered.

5. Section 2.72 is revised to read as follows:

§2.72 Amendments to description or drawing of the mark.

Amendments to the description or drawing of the mark may be permitted only if warranted by the specimens (or facsimiles) as originally filed, or supported by additional specimens (or facsimiles) and a supplemental affidavit or declaration in accordance with §2.20 alleging that the mark shown in the amended drawing was in actual use prior to the filing date of the application. Amendments may not be made if the character of the mark is materially altered.

6. Section 2.81 is revised to read as follows:

§2.81 Allowance of application.

If no opposition is filed within the time permitted or all oppositions filed are dismissed, and if no interference is declared and no concurrent use proceeding is instituted, the application will be prepared for issuance of the certificate of registration as provided in §2.151.

§2.88 [Removed]

7. Section 2.88 is removed.

§2.94 [Removed]

8. Section 2.94 is removed.

§2.95 [Removed]

9. Section 2.95 is removed.

10. Section 2.96 is revised to read as follows:

§2.96 Issue; burden of proof.

The issue in an interference between applications is normally priority of use, but the rights of the parties to registration may also be determined. The party whose application involved in the interference has the latest filing date is the junior party and has the burden of proof. When there are more than two parties to an interference, a party shall be a junior to and shall have the burden of proof as against every other party whose application involved in the interference has an earlier filing date. If the involved applications of any parties have the same filing date, the application with the latest date of execution will be deemed to have the latest filing date and that applicant will be the junior party. The issue in an interference between an application and a registration shall be the same, but in the event the final decision is adverse to the registrant, a registration to the applicant will not be authorized so long as the interfering registration remains on the register.

§2.97 [Removed]

11. Section 2.97 is removed.

12. Section 2.98 is revised to read as follows:

§2.98 Adding party to interference.

A party may be added to an interference only upon petition to the Commissioner by that party. If an application which is or might be the subject of a petition for addition to an interference is not added, the examiner may suspend action on the application pending termination of the interference proceeding.

13. Section 2.99 is revised to read as follows:

§2.99 Application to register as concurrent user.

(a) An application for registration as a lawful concurrent user will be examined in the same manner as other applications for registration.

(b) When it is determined that the mark is ready for publication, the applicant may be required to furnish as many copies of this application, specimens and drawing as may be necessary for the preparation of notices for each applicant, registrant or user specified as a concurrent user in the application for registration.

(c) Upon receipt of the copies required by paragraph (b) of this section, the examiner shall forward the application for concurrent use registration for publication in the Official Gazette as provided by §2.80. If no opposition is filed, or if all oppositions that are filed are dismissed or withdrawn, the Trademark Trial and Appeal Board shall prepare a notice for the applicant for concurrent use registration and for each applicant, regis-

trant or user specified as a concurrent user in the application. The notices for the specified parties shall state the name and address of the applicant and of the applicant's attorney or other authorized representative, if any, together with the serial number and filing date of the application.

(d)(1) The notices shall be sent to each applicant, in care of his attorney or other authorized representative, if any, to each user, and to each registrant. A copy of the application shall be forwarded with the notice to each party specified in the application.

(2) An answer to the notice is not required in the case of an applicant or registrant whose application or registration is specified as a concurrent user in the application, but a statement, if desired, may be filed within forty days after the mailing of the notice; in the case of any other party specified as a concurrent user in the application, and answer must be filed within forty days after the mailing of the notice.

(3) If an answer, when required, is not filed, judgment will be entered precluding the specified user from claiming any right more extensive than that acknowledged in the application(s) for concurrent use registration, but the applicant(s) will remain with the burden of proving entitlement to registration(s).

(e) The applicant for a concurrent use registration has the burden of proving entitlement thereto. If there are two or more applications for concurrent use registration involved in a proceeding, the party whose application has the latest filing date is the junior party. A party whose application has a filing date between the filing dates of the earliest involved application and the latest involved application is a junior party to every party whose involved application has an earlier filing date. If any applications have the same filing date, the application with the latest date of execution will be deemed to have the latest filing date and that applicant will be the junior party. A person specified as an excepted user in a concurrent use application but who has not filed an application shall be considered a party senior to every party that has an application involved in the proceeding.

(f) When a concurrent use registration is sought on the basis that a court of competent jurisdiction has finally determined that the parties are entitled to use the same or similar marks in commerce, a concurrent use registration proceeding will not be instituted if all of the following conditions are fulfilled:

(1) The applicant is entitled to registration subject only to the concurrent lawful use of a party to the court proceeding; and

(2) The court decree specifies the rights of the parties; and

(3) A true copy of the court decree is submitted to the examiner; and

(4) The concurrent use application complies fully and exactly with the court decree; and

(5) The excepted use specified in the concurrent use application does not involve a registration, or any involved registration has been restricted by the Commissioner in accordance with the court decree.

If any of the conditions specified in this paragraph is not satisfied, a concurrent use registration proceeding shall be prepared and instituted as provided in paragraphs (a) throught (e) of this section.

(g) Registrations and applications to register on the Supplemental Register and registrations under the Act of 1920 are not subject to concurrent use registration proceedings.

14. Section 2.104 is revised to read as follows:

§2.104 Contents of opposition.

The opposition must set forth a short and plain statement showing how the opposer would be damaged by the registration of the opposed mark and state the grounds for opposition. A duplicate copy of the opposition, including exhibits, shall be filed with the opposition.

15. Section 2.105 is revised to read as follows:

§2.105 Notification of opposition proceeding(s).

When an opposition in proper form has been filed and the correct fee(s) have been submitted, a notification shall be prepared by the Trademark Trial and Appeal Board, which shall identify the title and number of the proceeding and the application involved and shall designate a time, not less than thirty days from the mailing date of the notification, within which an answer must be filed. A copy of the notification shall be forwarded to the attorney or other authorized representative of the opposer, if any, or to the opposer. The duplicate copy of the opposition and exhibits shall be forwarded with a copy of the notification to the attorney or other authorized representative of the applicant, if any, or to the applicant.

16. Section 2.106 is amended by revising paragraph (c) to read as follows:

§2.106 Answer.

* * * * *

(c) The opposition may be withdrawn without prejudice before the answer is filed. After the answer is filed, the opposition may not be withdrawn without prejudice except with the written consent of the applicant.

17. Section 2.107 is revised to read as follows:

§2.107 Amendment of pleadings in an opposition proceeding.

Pleadings in an opposition proceeding may be amended in the same manner and to the same extent as in a civil action in a United States district court.

18. Section 2.113 is revised to read as follows:

§2.113 Notification of cancellation proceeding.

(a) When a petition for cancellation has been filed in proper form (see §§2.111 and 2.112), a notification shall be prepared by the Trademark Trial and Appeal Board, which shall identify the title and number of the proceeding and the registration or registrations involved and shall designate a time, not less than thirty days from the mailing date of the notification, within which an answer must be filed. A copy of the notification shall be forwarded to the attorney or other authorized representative of the petitioner, if any, or to the petitioner. The duplicate copy of the petition for cancellation and exhibits shall be forwarded with a copy of the notification to the respondent (see §2.118). If the petition is found to be defective as to form, the party filing the petition shall be so advised and allowed a reasonable time for correcting the informality.

19. Section 2.115 is revised to read as follows:

§2.115 Amendment of pleadings in a cancellation proceeding.

Pleadings in a cancellation proceeding may be amended in the same manner and to the same extent as in a civil action in a United States district court.

20. Section 2.116 is amended by revising paragraphs (b) and (c) to read as follows:

§2.116 Rules of Procedure.

* * * * *

(b) The opposer in an opposition proceeding or the petitioner in a cancellation proceeding shall be in the position of plaintiff, and the applicant in an opposition proceeding or the respondent in a cancellation proceeding shall be in the position of defendant. A party that is a junior party in an interference proceeding or in a concurrent use registration proceeding shall be in the position of plaintiff against every party that is senior, and the

party that is a senior party in an interference proceeding or in a concurrent use registration proceeding shall be defendant against every party that is junior.

(c) The opposition or the petition for cancellation and the answer correspond to the complaint and answer in a court proceeding.

21. Section 2.117 is revised to read as follows:

§2.117 Suspension of proceedings.

(a) Whenever it shall come to the attention of the Trademark Trial and Appeal Board that parties to a pending case are engaged in a civil action which may be dispositive of the case, proceedings before the Board may be suspended until termination of the civil action.

(b) Whenever there is pending, at the time when the question of the suspension of proceedings is raised, a motion which is potentially dispositive of the case, the motion may be decided before the question of suspension is considered.

(c) Proceedings may also be suspended, for good cause, upon motion or a stipulation of the parties approved by the Board.

22. Section 2.120 is revised to read as follows:

§2.120 Discovery.

(a) *In general.* The provisions of the Federal Rules of Civil Procedure relating to discovery shall apply in opposition, cancellation, interference and concurrent use registration proceedings except as otherwise provided in this section. The Trademark Trial and Appeal Board will specify the closing date for the taking of discovery.

(b) *Discovery deposition within the United States.* The deposition of a natural person shall be taken in the Federal judicial district where the person resides or is regularly employed or at any place on which the parties agree by stipulation. The responsibility rests wholly with the party taking discovery to secure the attendance of a proposed deponent other than a party or anyone who, at the time set for the taking of the deposition, is an officer, director, or managing agent of a party, or a person designated under Rule 30(b)(6) or Rule 31(a) of the Federal Rules of Civil Procedure. See 35 U.S.C. 24.

(c) *Discovery deposition in foreign countries.* (1) The discovery deposition of a natural person residing in a foreign country who is a party or who, at the time set for the taking of the deposition, is an officer, director, or managing agent of a party, or a person designated under Rule 30(b)(6) or Rule 31(a) of the Federal Rules of Civil Procedure, shall, if taken in a foreign country, be taken in the manner prescribed by §2.124 unless the Trademark Trial and Appeal Board, upon motion for good cause, orders or the parties stipulate, that the deposition be taken by oral examination.

(2) Whenever a foreign party is or will be, during a time set for discovery, present within the United States or any territory which is under the control and jurisdiction of the United States, such party may be deposed by oral examination upon notice by the party seeking discovery. Whenever a foreign party has or will have, during a time set for discovery, an officer, director, managing agent, or other person who consents to testify on its behalf, present within the United States or any territory which is under the control and jurisdiction of the United States, such officer, director, managing agent, or other person who consents to testify in its behalf may be deposed by oral examination upon notice by the party seeking discovery. The party seeking discovery may have one or more officers, directors, managing agents, or other persons who consent to testify on behalf of the adverse party, designated under Rule 30(b)(6) of the Federal Rules of Civil Procedure. The deposition of a person under this paragraph shall be taken in the Federal judicial district where the witness resides or is regularly employed, or, if the witness neither resides nor is regularly employed in a Federal judicial district, where the witness is at the time of the deposition. This paragraph does not preclude the taking of a discovery deposition of a foreign party by any other procedure provided by paragraph (c)(1) of this section.

(d) *Request for production.* The production of documents and things under the provisions of Rule 34 of the Federal Rules of Civil Procedure will be made at the place where the documents and things are usually kept, or where the parties agree, or where and in the manner which the Trademark Trial and Appeal Board, upon motion, orders.

(e) *Motion for an order to compel discovery.* If a party fails to designate a person pursuant to Rule 30(b)(6) or Rule 31(a) of the Federal Rules of Civil Procedure, or if a party, or such designated person, or an officer, director or managing agent of a party fails to attend a deposition or fails to answer any question propounded in a discovery deposition, or any interrogatory, or fails to produce and permit the inspection and copying of any document or thing, the party seeking discovery may file a motion before the Trademark Trial and Appeal Board for an order to compel a designation, or attendance at a deposition, or an answer, or production and an opportunity to inspect and copy. The motion shall include a copy of the request for designation or of the relevant portion of the discovery deposition; or a copy of the interrogatory with any answer or objection that was made; or a copy of the request for production, any proffer of production or objection to production in response to the request, and a list and brief description of the documents or things that were not produced for inspection and copying. The motion must be supported by a written statement from the moving party that such party or the attorney therefor has made a good faith effort, by conference or correspondence, to resolve with the other party or the attorney therefor the issues presented in the motion and has been unable to reach agreement. If issues raised in the motion are subsequently resolved by agreement of the parties, the moving party should inform the Board in writing of the issues in the motion which no longer require adjudication.

(f) *Motion for a protective order.* Upon motion by a party from whom discovery is sought, and for good cause, the Trademark Trial and Appeal Board may make any order which justice requires to protect a party from annoyance, embarrassment, oppression, or undue burden or expense, including one or more of the types of orders provided by clauses (1) through (8), inclusive, of Rule 26(c) of the Federal Rules of Civil Procedure. If the motion for a protective order is denied in whole or in part, the Board may, on such conditions (other than an award of expenses to the party prevailing on the motion) as are just, order that any party provide or permit discovery.

(g) *Failure to comply with order.* If a party fails to comply with an order of the Trademark Trial and Appeal Board relating to discovery, including a protective order, the Board may make any appropriate order, including any of the orders provided in Rule 37(b)(2) of the Federal Rules of Civil Procedure, except that the Board does not have authority to hold any person in contempt or to award any expenses to any party. The Board may impose against a party any of the sanctions provided by this subsection in the event that said party or any attorney, agent, or designated witness of that party fails to comply with a protective order made pursuant to Rule 26(c) of the Federal Rules of Civil Procedure.

(h) *Request for admissions.* Requests for admissions shall be governed by Rule 36 of the Federal Rules of Civil Procedure except that the Trademark Trial and Appeal Board does not have authority to award any expenses to any party. A motion by a party to determine the sufficiency of an answer or objection to a request made by that party for an admission shall include a copy of the request for admission and any exhibits thereto and of the answer or objection. The motion must be supported by a written statement from the moving party that such party or the attorney therefor has made a good faith effort, by conference or correspondence, to resolve with the other party or the attorney therefor the issues

presented in the motion and has been unable to reach agreement. If issues raised in the motion are subsequently resolved by agreement of the parties, the moving party should inform the Board in writing of the issues in the motion which no longer require adjudication.

(i) *Telephone and pre-trial conferences.* (1) Whenever it appears to the Trademark Trial and Appeal Board that a motion filed in an inter partes proceeding is of such nature that its resolution by correspondence is not practical, the Board may, upon its own initiative or upon request made by one or both of the parties, resolve the motion by telephone conference.

(2) Whenever it appears to the Trademark Trial and Appeal Board that questions or issues arising during the interlocutory phase of an inter partes proceeding have become so complex that their resolution by correspondence or telephone conference is not practical and that resolution would be likely to be facilitated by a conference in person of the parties or their attorneys with a Member or Attorney-Examiner of the Board, the Board may, upon its own initiative or upon motion made by one or both of the parties, request that the parties or their attorneys, under circumstances which will not result in undue hardship for any party, meet with the Board at its offices for a pre-trial conference.

(j) *Use of discovery deposition, admission, or answer to interrogatory.* (1) The discovery deposition of a party or of anyone who at the time of taking the deposition was on officer, director or managing agent of a party, or a person designated by a party pursuant to Rule 30(b)(6) or Rule 31(a) of the Federal Rules of Civil Procedure, may be offered in evidence by an adverse party.

(2) Except as provided in paragraph (j)(1) of this section, the discovery deposition of a witness, whether or not a party, shall not be offered in evidence unless the person whose deposition was taken is, during the testimony period of the party offering the deposition, dead; or out of the United States (unless it appears that the absence of the witness was procured by the party offering the deposition); or unable to testify because of age, illness, infirmity, or imprisonment; or cannot be served with a subpoena to compel attendance at a testimonial deposition; or there is a stipulation by the parties; or upon a showing that such exceptional circumstances exist as to make it desirable, in the interest of justice, to allow the deposition to be used. The use of a discovery deposition by any party under this paragraph will be allowed only by stipulation of the parties approved by the Trademark Trial and Appeal Board, or by order of the Board on motion, which shall be filed at the time of the purported offer of the deposition in evidence, unless the motion is based upon a claim that such exceptional circumstances exist as to make it desirable, in the interest of justice, to allow the deposition to be used, in which case the motion shall be filed promptly after the circumstances claimed to justify use of the deposition became known.

(3) A discovery deposition, an answer to an interrogatory, or an admission to a request for admisssion, which may be offered in evidence under the provisions of paragraph (j) of this section may be made of record in the case by filing the deposition or any part thereof with any exhibit to the part that is filed, or a copy of the interrogatory and answer thereto with any exhibit made part of the answer, or a copy of the request for admission and any exhibit thereto and the admission (or a statement that the party from whom an admission was requested failed to respond thereto), together with a notice of reliance. The notice of reliance and the material submitted thereunder should be filed during the testimony period of the party who files the notice of reliance. An objection made at a discovery deposition by a party answering a question subject to the objection will be considered at final hearing.

(4) If only part of a discovery deposition is submitted and made part of the record by a party, an adverse party may introduce under a notice of reliance any other part of the deposition which should in fairness be considered so as to make not misleading what was offered by the submitting party.

(5) An answer to an interrogatory, or an admission to a request for admission, may be submitted and made part of the record by only the inquiring party except that, if fewer than all of the answers to interrogatories, or fewer than all of the admissions, are offered in evidence by the inquiring party, the responding party may introduce under a notice of reliance any other answers to interrogatories, or any other admissions, which should in fairness be considered so as to make not misleading what was offered by the inquiring party.

(6) Paragraph (j) of this section will not be interpreted to preclude the reading or the use of a discovery deposition, or answer to an interrogatory, or admission as part of the examination or cross-examination of any witness during the testimony period of any party.

(7) When a discovery deposition, or a part thereof, or an answer to an interrogatory, or an admission, has been made of record by one party in accordance with the provisions of paragraph (j)(3) of this section, it may be referred to by any party for purpose permitted by the Federal Rules of Evidence.

(8) Interrogatories, requests for production, requests for admissions, and materials or depositions obtained during the discovery period should not be filed with the Board except when submitted with a motion to compel discovery, or in support of or response to a motion for summary judgment, or under a notice of reliance during a party's testimony period.

23. Section 2.121 is revised to read as follow:

§2.121 Assignment of times for taking testimony.

(a)(1) The Trademark Trial and Appeal Board will issue a trial order assigning to each party the time for taking testimony. No testimony shall be taken except during the times assigned, unless by stipulation of the parties approved by the Board, or, upon motion, by order of the Board. Testimony periods may be rescheduled by stipulation of the parties approved by the Board, or upon motion granted by the Board, or by order of the Board. The resetting of the closing date for discovery will result in the rescheduling of the testimony periods without action by any party.

(2) The initial trial order will be mailed by the Board after issue is joined.

(b)(1) The Trademark Trial and Appeal Board will schedule a testimony period for the plaintiff to present its case in chief, a testimony period for the defendant to present its case and to meet the case of the plaintiff, and a testimony period for the plaintiff to present evidence in rebuttal.

(2) When there is a counterclaim, or when proceedings have been consolidated and one party is in the position of plaintiff in one of the involved proceedings and in the position of defendant in another of the involved proceedings, or when there is an interference or a concurrent use registration proceeding involving more than two parties, the Board will schedule testimony periods so that each party in the position of plaintiff will have a period for presenting its case in chief against each party in the position of defendant, each party in the position of defendant will have a period for presenting its case and meeting the case of each plaintiff, and each party in the position of plaintiff will have a period for presenting evidence in rebuttal.

(c) A testimony period which is solely for rebuttal will be set for fifteen days. All other testimony periods will be set for thirty days. The periods may be extended by stipulation of the parties approved by the Trademark Trial and Appeal Board, or upon motion granted by the Board, or by order of the Board.

(d) When parties stipulate to the rescheduling of testimony periods or to the rescheduling of the closing date for discovery and the rescheduling of testimony periods, a stipulation presented in the form used in a trial order, signed by the parties, or a motion in said form signed by one party and including a statement that every other party has agreed thereto, and submitted in one original plus as many photocopies as there are parties, will, if ap-

proved, be so stamped, signed, and dated, and the copies will be promptly returned to the parties.

24. Section 2.122 is revised to read as follows:

§2.122 Matters in evidence.

(a) *Rules of evidence.* The rules of evidence for proceedings before the Trademark Trial and Appeal Board are the Federal Rules of Evidence, the relevant provisions of the Federal Rules of Civil Procedure, the relevant provisions of Title 28 of the United States Code, and the provisions of this Part of Title 37 of the Code of Federal Regulations.

(b) *Application files.* (1) The file of each application or registration specified in a declaration of interference, of each application or registration specified in the notice of a concurrent use registration proceeding, of the application against which a notice of opposition is filed, or of each registration against which a petition or counterclaim for cancellation is filed forms part of the record of the proceeding without any action by the parties and reference may be made to the file for any relevant and competent purpose.

(2) The allegation in an application for registration, or in a registration, of a date of use is not evidence on behalf of the applicant or registrant; a date of use of a mark must be established by competent evidence. Specimens in the file of an application for registration, or in the file of a registration, are not evidence on behalf of the applicant or registrant unless identified and introduced in evidence as exhibits during the period for the taking of testimony.

(c) *Exhibits to pleadings.* Except as provided in paragraph (d)(1) of this section, an exhibit attached to a pleading is not evidence on behalf of the party to whose pleading the exhibit is attached unless identified and introduced in evidence as an exhibit during the period for the taking of testimony.

(d) *Registrations.* (1) A registration of the opposer or petitioner pleaded in an opposition or petition to cancel will be received in evidence and made part of the record if the opposition or petition is accompanied by two copies of the registration prepared and issued by the Patent and Trademark Office showing both the current status of and current title to the registration. For the cost of a copy of a registration showing status and title, see §2.6(n).

(2) A registration owned by any party to a proceeding may be made of record in the proceeding by that party by appropriate identification and introduction during the taking of testimony or by filing a notice of reliance, which shall be accompanied by a copy of the registration prepared and issued by the Patent and Trademark Office showing both the current status of and current title to the registration. The notice of reliance shall be filed during the testimony period of the party that files the notice.

(e) *Printed publications and official records.* Printed publications, such as books and periodicals, available to the general public in libraries or of general circulation among members of the public or that segment of the public which is relevant under an issue in a proceeding, and official records, if the publication or official record is competent evidence and relevant to an issue, may be introduced in evidence by filing a notice of reliance on the material being offered, which notice shall specify the printed publication or the official record and the pages to be read, indicate generally the relevance of the material being offered, and be accompanied by the official record or a copy thereof whose authenticity is established under the Federal Rules of Evidence, or by the printed publication or a copy of the relevant portion thereof, including the title page and any other page needed to show the place and date of publication, the name and address of the publisher, and the name of the author or the editor. A copy of an official record of the Patent and Trademark Office need not be certified to be offered in evidence. The notice of reliance shall be filed during the testimony period of the party that files the notice.

(f) *Testimony from other proceedings.* By order of the Trademark Trial and Appeal Board, on motion, testimony taken in another proceeding, or testimony taken in a suit or action in a court, between the same parties or those in privity may be used in a proceeding, so far as relevant and material, subject, however, to the right of any adverse party to recall or demand the recall for examination or cross-examination of any witness whose prior testimony has been offered and to rebut the testimony.

25. Section 2.123 is amended by revising paragraphs (a), (e)(3), (j) and (k) to read as follows:

§2.123 Trial testimony in inter partes cases.

(a)(1) The testimony of witnesses in inter partes cases may be taken by depositions upon oral examination as provided by this section or by depositions upon written questions as provided by §2.124. If a party serves notice of the taking of a testimonial deposition upon written questions of a witness who is, or will be at the time of the deposition, present within the United States or any territory which is under the control and jurisdiction of the United States, any adverse party may, within fifteen days from the date of service of the notice, file a motion with the Trademark Trial and Appeal Board, for good cause, for an order that the deposition be taken by oral examination.

(2) A testimonial deposition taken in a foreign country shall be taken by deposition upon written questions as provided by §2.124, unless the Board, upon motion for good cause, orders that the deposition be taken by oral examination, or the parties so stipulate.

* * * * *

(e) *Examination of witnesses.* * * *

(3) Every adverse party shall have full opportunity to cross-examine each witness. If the notice of examination of witnesses which is served pursuant to paragraph (c) of this section is improper or inadequate with respect to any witness, an adverse party may cross-examine that witness under protest while reserving the right to object to the receipt of the testimony in evidence. Promptly after the testimony is completed, the adverse party, if he wishes to preserve the objection, shall move to strike the testimony from the record, which motion will be decided on the basis of all of the relevant circumstances. A motion to strike the testimony of a witness for lack of proper or adequate notice of examination must request the exclusion of the entire testimony of that witness and not only a part of that testimony.

* * * * *

(j) *Effect of errors and irregularities in depositions:* Rule 32(d) (1), (2), and (3) (A) and (B) of the Federal Rules of Civil Procedure shall apply to errors and irregularities in depositions. Notice will not be taken of merely formal or technical objections which shall not appear to have wrought a substantial injury to the party raising them; and in case of such injury it must be made to appear that the objection was raised at the time specified in said rule.

(k) *Objections to admissibility.* Subject to the provisions of paragraph (j) of this section, objection may be made to receiving in evidence any deposition, or part thereof, or any other evidence, for any reason which would require the exclusion of the evidence from consideration. Objections to the competency of a witness or to the competency, relevancy, or materiality of testimony must be raised at the time specified in Rule 32(d)(3)(A) of the Federal Rules of Civil Procedure. Such objections will not be considered until final hearing.

26. Section 2.124 is revised to read as follows:

§2.124 Depositions upon written questions.

(a) A deposition upon written questions may be taken before any person before whom depositions may be taken as provided by Rule 28 of the Federal Rules of

Civil Procedure.

(b)(1) A party desiring to take a testimonial deposition upon written questions shall serve notice thereof upon each adverse party within ten days from the opening date of the testimony period of the party who serves the notice. The notice shall state the name and address of the witness. A copy of the notice, but not copies of the questions, shall be filed with the Trademark Trial and Appeal Board.

(2) A party desiring to take a discovery deposition upon written questions shall serve notice thereof upon each adverse party and shall file a copy of the notice, but not copies of the questions, with the Board. The notice shall state the name and address, if known, of the person whose deposition is to be taken. If the name of the person is not known, a general description sufficient to identify him or the particular class or group to which he belongs shall be stated in the notice, and the party from whom the discovery deposition is to be taken shall designate one or more persons to be deposed in the same manner as is provided by Rule 30(b)(6) of the Federal Rules of Civil Procedure.

(c) Every notice given under the provisions of paragraph (b) of this section shall be accompanied by the name or descriptive title of the officer before whom the deposition is to be taken.

(d)(1) Every notice served on any adverse party under the provisions of paragraph (b) of this section shall be accompanied by the written questions to be propounded on behalf of the party who proposes to take the deposition. Within twenty days from the date of service of the notice, any adverse party may serve cross questions upon the party who proposes to take the deposition; any party who serves cross questions shall also serve every other adverse party. Within ten days from the date of service of the cross questions, the party who proposes to take the deposition may serve redirect questions on every adverse party. Within ten days from the date of service of the redirect questions, any party who served cross questions may serve recross questions upon the party who proposes to take the deposition; any party who serves recross questions shall also serve every other adverse party. Written objections to questions may be served on a party propounding questions; any party who objects shall serve a copy of the objections on every other adverse party. In response to objections, substitute questions may be served on the objecting party within ten days of the date of service of the objections; substitute questions shall be served on every other adverse party.

(2) Upon motion for good cause by any party, or upon its own initiative, the Trademark Trial and Appeal Board may extend any of the time periods provided by paragraph (d)(1) of this section. Upon receipt of written notice that one or more testimonial depositions are to be taken upon written questions, the Trademark Trial and Appeal Board shall suspend or reschedule other proceedings in the matter to allow for the orderly completion of the depositions upon written questions.

(e) Within ten days after the last date when questions, objections, or substitute questions may be served, the party who proposes to take the deposition shall mail a copy of the notice and copies of all the questions to the officer designated in the notice; a copy of the notice and of all the questions mailed to the officer shall be served on every adverse party. The officer designated in the notice shall take the testimony of the witness in response to the questions and shall record each answer immediately after the corresponding question. The officer shall then certify the transcript and mail the transcript and exhibits to the party who took the deposition.

(f) The party who took the deposition shall promptly serve a copy of the transcript, copies of documentary exhibits, and duplicates or photographs of physical exhibits on every adverse party. It is the responsibility of the party who takes the deposition to assure that the transcript is correct (see §2.125(b)). If the deposition is a discovery deposition, it may be made of record as provided by §2.120(j). If the deposition is a testimonial deposition, the original, together with copies of documentary exhibits and duplicates or photographs of physical exhibits, shall be filed promptly with the Trademark Trial and Appeal Board.

(g) Objections to questions and answers in depositions upon written questions may be considered at final hearing.

27. Section 2.125 is revised to read as follows:

§2.125 Filing and service of testimony.

(a) One copy of the transcript of testimony taken in accordance with §2.123, together with copies of documentary exhibits and duplicates or photographs of physical exhibits, shall be served on each adverse party within thirty days after completion of the taking of that testimony.

(b) The party who takes testimony is responsible for having all typographical errors in the transcript and all errors of arrangement, indexing and form of the transcript corrected, on notice to each adverse party, prior to the filing of one certified transcript with the Trademark Trial and Appeal Board. The party who takes testimony is responsible for serving on each adverse party one copy of the corrected transcript or, if reasonably feasible, corrected pages to be inserted into the transcript previously served.

(c) One certified transcript and exhibits shall be filed promptly with the Trademark Trial and Appeal Board. Notice of such filing shall be served on each adverse party and a copy of each notice shall be filed with the Board.

(d) Each transcript shall comply with §2.123(g) with respect to arrangement, indexing and form.

(e) Upon motion by any party, for good cause, the Trademark Trial and Appeal Board may order that any part of a deposition transcript or any exhibits that directly disclose any trade secret or other confidential research, development, or commercial information may be filed under seal and kept confidential under the provisions of §2.27(e). If any party or any attorney or agent of a party fails to comply with an order made under this paragraph, the Board may impose any of the sanctions authorized by §2.120(g).

§2.126 [Removed]

28. Section 2.126 is removed.

29. Section 2.127 is revised to read as follows:

§2.127 Motions

(a) Every motion shall be made in writing, shall contain a full statement of the grounds, and shall embody or be accompanied by a brief. A brief in response to a motion shall be filed within fifteen days from the date of service of the motion unless another time is specified by the Trademark Trial and Appeal Board or the time is extended by order of the Board on motion for good cause. When a party fails to file a brief in response to a motion, the Board may treat the motion as conceded. An oral hearing will not be held on a motion except on order by the Board.

(b) Any request for reconsideration or modification of an order or decision issued on a motion must be filed within thirty days from the date thereof. A brief in response must be filed within fifteen days from the date of service of the request.

(c) Interlocutory motions, requests, and other matters not actually or potentially dispositive of a proceeding may be acted upon by a single Member of the Trademark Trial and Appeal Board or by an Attorney-Examiner of the Board to whom authority so to act has been delegated.

(d) When any party files a motion to dismiss, or a motion for judgment on the pleadings, or a motion for summary judgment, or any other motion which is potentially dispositive of a proceeding, the case will be suspended by the Trademark Trial and Appeal Board with respect to all matters not germane to the motion

and no party should file any paper which is not germane to the motion. If the case is not disposed of as a result of the motion, proceedings will be resumed pursuant to an order of the Board when the motion is decided.

30. Section 2.128 is revised to read as follows:

§2.128 Briefs at final hearing.

(a)(1) The brief of the party in the position of plaintiff shall be due not later than sixty days after the date set for the close of rebuttal testimony. The brief of the party in the position of defendant, if filed, shall be not later than thirty days after the due date of the first brief. A reply brief by the party in the position of plaintiff, if filed, shall be due not later than fifteen days after the due date of the defendant's brief.

(2) When there is a counterclaim, or when proceedings have been consolidated and one party is in the position of plaintiff in one of the involved proceedings and in the position of defendant in another of the involved proceedings, or when there is an interference or a concurrent use registration proceeding involving more than two parties, the Trademark Trial and Appeal Board will set the due dates for the filing of the main brief, and the answering brief, and the rebuttal brief by the parties.

(3) When a party in the position of plaintiff fails to file a main brief, an order may be issued allowing plaintiff until a set time, not less than fifteen days, in which to show cause why the Board should not treat such failure as a concession of the case. If plaintiff fails to file a response to the order, or files a response indicating that he has lost interest in the case, judgment may be entered against plaintiff.

(b) Briefs shall be submitted in typewritten or printed form, double spaced, on letter size paper. Without leave of the Trademark Trial and Appeal Board, no brief shall contain more than fifty pages of argument and, in the case of a reply brief, the entire brief shall not exceed twenty-five pages. Each brief shall contain an alphabetical index of cases cited therein. One original and two legible copies, on good quality paper, of each brief shall be filed.

31. Section 2.129 is revised to read as follows:

§2.129 Oral argument; reconsideration.

(a) If a party desires to have an oral argument at final hearing, the party shall request such argument by a separate notice filed not later than ten days after the due date for the filing of the last reply brief in the proceeding. Oral arguments will be heard by three Members of the Trademark Trial and Appeal Board at the time specified in the notice of hearing. If any party appears at the specified time, that party will be heard. If the Board is prevented from hearing the case at the specified time, a new hearing date will be set. Unless otherwise permitted, oral arguments in an inter partes case will be limited to thirty minutes for each party. A party in the position of plaintiff may reserve part of the time allowed for oral argument to present a rebuttal argument.

(b) The date or time of a hearing may be reset, so far as is convenient and proper, to meet the wishes of the parties and their attorneys or other authorized representatives.

(c) Any request for rehearing or reconsideration or modification of a decision issued after final hearing must be filed within thirty days from the date of the decision. A brief in response must be filed within fifteen days from the date of service of the request. The times specified may be extended by order of the Trademark Trial and Appeal Board on motion for good cause.

32. Section 2.131 is revised to read as follows:

§2.131 Remand after decision in inter partes proceeding.

If, during an inter partes proceeding, facts are disclosed which appear to render the mark of an applicant unregistrable, but such matter has not been tried under the pleadings as filed by the parties or as they might be deemed to be amended under Rule 15(b) of the Federal Rules of Civil Procedure to conform to the evidence, the Trademark Trial and Appeal Board, in lieu of determining the matter in the decision on the proceeding, may refer the application to the examiner for reexamination in the event the applicant ultimately prevails in the inter partes proceeding. Upon receiving the application, the examiner shall withhold registration pending reexamination of the application in the light of the reference by the Board. If, upon reexamination, the examiner finally refuses registration to the applicant, an appeal may be taken as provided by §§2.141 and 2.142.

33. Section 2.132 is revised to read as follows:

§2.132 Involuntary dismissal for failure to take testimony.

(a) If the time for taking testimony by any party in the position of plaintiff has expired and that party has not taken testimony or offered any other evidence, any party in the position of defendant may, without waiving the right to offer evidence in the event the motion is denied, move for dismissal on the ground of the failure of the plaintiff to prosecute. The party in the position of plaintiff shall have fifteen days from the date of service of the motion to show cause why judgment should not be rendered against him. In the absence of a showing of good and sufficient cause, judgment may be rendered against the party in the position of plaintiff. If the motion is denied, testimony periods will be reset for the party in the position of defendant and for rebuttal.

(b) If no evidence other than a copy or copies of Patent and Trademark Office records is offered by any party in the position of plaintiff, any party in the position of defendant may, without waiving the right to offer evidence in the event the motion is denied, move for dismissal on the ground that upon the law and the facts the party in the position of plaintiff has shown no right to relief. The party in the position of plaintiff shall have fifteen days from the date of service of the motion to file a brief in response to the motion. The Trademark Trial and Appeal Board may render judgment against the party in the position of plaintiff, or the Board may decline to render judgment until all of the evidence is in the record. If judgment is not rendered, testimony periods will be reset for the party in the position of defendant and for rebuttal.

(c) Any motion filed under paragraph (a) or (b) of this section must be filed before the opening of the testimony period of the moving party.

34. Section 2.134 is revised to read as follows:

§2.134 Surrender or voluntary cancellation of registration.

(a) After the commencement of a cancellation proceeding, if the respondent applies for cancellation of the involved registration under section 7(d) of the Act of 1946 without the written consent of every adverse party, judgment shall be entered against the respondent.

(b) After the commencement of a cancellation proceeding, if it comes to the attention of the Trademark Trial and Appeal Board that the respondent has permitted his involved registration to be cancelled under section 8 of the Act of 1946 or has failed to renew his involved registration under section 9 of the Act of 1946, an order may be issued allowing respondent until a set time, not less than fifteen days, in which to show cause why such cancellation or failure to renew should not be deemed to be the equivalent of a cancellation by request of respondent without the consent of the adverse party and should not result in entry of judgment against respondent as provided by paragraph (a) of this section. In the absence of a showing of good and sufficient cause, judgment may be entered against respondent as provided by paragraph (a) of this section.

35. Section 2.135 is revised to read as follows:

§2.135 Abandonment of application or mark.

After the commencement of an opposition, concurrent use, or interference proceeding, if the applicant files a written abandonment of the application or of the mark without the written consent of every adverse party,

judgment shall be entered against the applicant.

36. Section 2.142 is proposed to be revised to read as follows:

§2.142 Time and manner of ex parte appeals.

(a) Any appeal filed under the provisions of §2.141 must be filed within six months from the date of final refusal or the date of the action from which the appeal is taken. An appeal is taken by filing a notice of appeal and paying the appeal fee.

(b) The brief of appellant shall be filed within sixty days from the date of appeal. If the brief is not filed within the time allowed, the appeal may be dismissed. The examiner shall, within sixty days after the brief of appellant is sent to the examiner, file with the Trademark Trial and Appeal Board a written brief answering the brief of appellant and shall mail a copy of the brief to the appellant. The appellant may file a reply brief within twenty days from the date of mailing of the brief of the examiner.

(c) All requirements made by the examiner and not the subject of appeal shall be complied with prior to the filing of an appeal.

(d) The record in the application should be complete prior to the filing of an appeal. The Trademark Trial and Appeal Board will ordinarily not consider additional evidence filed with the Board by the appellant or by the examiner after the appeal is filed. After an appeal is filed, if the appellant or the examiner desires to introduce additional evidence, the appellant or the examiner may request the Board to suspend the appeal and to remand the application for further examination.

(e)(1) If the appellant desires an oral hearing, a request therefor should be made by a separate notice filed not later than ten days after the due date for a reply brief. Oral argument will be heard by three Members of the Trademark Trial and Appeal Board at the time specified in the notice of hearing, which may be reset if the Board is prevented from hearing the argument at the specified time or, so far as is convenient and proper, to meet the wish of the appellant or his attorney or other authorized representative.

(2) If the appellant requests an oral argument, the examiner who issued the refusal of registration or the requirement from which the appeal is taken, or in lieu thereof another examiner from the same examining division as designated by the supervisory attorney thereof, shall present an oral argument. If no request for an oral hearing is made by the appellant, the appeal will be decided on the record and briefs.

(3) Oral argument will be limited to twenty minutes by the appellant and ten minutes by the examiner. The appellant may reserve part of the time allowed for oral argument to present a rebuttal argument.

(f)(1) If, during an appeal from a refusal of registration, it appears to the Trademark Trial and Appeal Board that an issue not previously raised may render the mark of the appellant unregistrable, the Board may suspend the appeal and remand the application to the examiner for further examination to be completed within thirty days.

(2) If the further examination does not result in an additional ground for refusal of registration, the examiner shall promptly return the application to the Board, for resumption of the appeal, with a written statement that further examination did not result in an additional ground for refusal of registration.

(3) If the further examination does result in an additional ground for refusal of registration, the examiner and appellant shall proceed as provided by §§2.61, 2.62, 2.63 and 2.64. If the ground for refusal is made final, the examiner shall return the application to the Board, which shall thereupon issue an order allowing the appellant sixty days from the date of the order to file a supplemental brief limited to the additional ground for the refusal of registration. If the supplemental brief is not filed by the appellant within the time allowed, the appeal may be dismissed.

(4) If the supplemental brief of the appellant is filed, the examiner shall, within sixty days after the supplemental brief of the appellant is sent to the examiner, file with the Board a written brief answering the supplemental brief of appellant and shall mail a copy of the brief to the appellant. The appellant may file a reply brief within twenty days from the date of mailing of the brief of the examiner.

(5) If an oral hearing on the appeal had been requested prior to the remand of the application but not yet held, an oral hearing will be set and heard as provided in paragraph (e) of this section. If an oral hearing had been held prior to the remand or had not been previously requested by the appellant, an oral hearing may be requested by the appellant by a separate notice filed not later than ten days after the due date for a reply brief on the additional ground for refusal of registration. If the appellant files a request for an oral hearing, one will be set and heard as provided in paragraph (e) of this section.

(g) An application which has been considered and decided on appeal will not be reopened except for the entry of a disclaimer under section 6 of the Act of 1946 or upon order of the Commissioner, but a petition to the Commissioner to reopen an application will be considered only upon a showing of sufficient cause for consideration of any matter not already adjudicated.

37. Section 2.146 is revised to read as follows:

§2.146 Petitions to the Commissioner.

(a) Petition may be taken to the Commissioner: (1) From any repeated or final formal requirement of the examiner in the ex parte prosecution of an application if permitted by §2.63(b); (2) in any case for which the Act of 1946, or Title 35 of the United States Code, or this Part of Title 37 of the Code of Federal Regulations specifies that the matter is to be determined directly or reviewed by the Commissioner; (3) to invoke the supervisory authority of the Commissioner in appropriate circumstances; (4) in any case not specifically defined and provided for by this part of Title 37 of the Code of Federal Regulations; (5) in an extraordinary situation, when justice requires and no other party is injured thereby, to request a suspension or waiver of any requirement of the rules not being a requirement of the Act of 1946.

(b) Questions of substance arising during the ex parte prosecution of applications, including, but not limited to, questions arising under sections 2, 3, 4, 5, 6 and 23 of the Act of 1946, are not considered to be appropriate subject matter for petitions to the Commissioner.

(c) Every petition to the Commissioner shall include a statement of the facts relevant to the petition, the points to be reviewed, the action or relief that is requested, and the requisite fee (see §2.6). Any brief in support of the petition shall be embodied in or accompany the petition. When facts are to be proved in ex parte cases (as in a petition to revive an abandoned application), the proof in the form of affidavits or declarations in accordance with §2.20, and any exhibits, shall accompany the petition.

(d) A petition on any matter not otherwise specifically provided for shall be filed within sixty days from the date of mailing of the action from which relief is requested.

(e)(1) A petition from the denial of a request for an extension of time to file a notice opposition shall be filed within fifteen days from the date of mailing of the denial of the request and shall be served on the attorney or other authorized representative of the applicant, if any, or on the applicant. Proof of service of the petition shall be made as provided by §2.119(a). The applicant may file a response within fifteen days from the date of service of the petition and shall serve a copy of the response on the petitioner, with proof of service as provided by §2.119(a). No further paper relating to the petition shall be filed.

(2) A petition from an interlocutory order of the Trademark Trial and Appeal Board shall be filed within

thirty days after the date of mailing of the order from which relief is requested. Any brief in response to the petition shall be filed, with any supporting exhibits, within fifteen days from the date of service of the petition. Petitions and responses to petitions, and any papers accompanying a petition or response, under this subsection shall be served on every adverse party pursuant to §2.119(a).

(f) An oral hearing will not be held on a petition except when considered necessary by the Commissioner.

(g) The mere filing of a petition to the Commissioner will not act as a stay in any appeal or inter partes proceeding that is pending before the Trademark Trial and Appeal Board nor stay the period for replying to an Office action in an application except when a stay is specifically requested and is granted or when §§2.63(b) and 2.65 are applicable to an ex parte application.

(h) Authority to act on petitions, or on any petition, may be delegated by the Commissioner.

§2.147 [Removed]

38. Section 2.147 is removed.

39. Section 2.165 is revised to read as follows:

§2.165 Reconsideration of affidavit or declaration.

(a)(1) If the affidavit or declaration filed pursuant to §2.162 is insufficient or defective, the affidavit or declaration will be refused and the registrant will be notified of the reason. Reconsideration of the refusal may be requested within six months from the date of the mailing of the action. The request for reconsideration must state the grounds for the request. A supplemental or substitute affidavit or declaration required by section 8 of the Act of 1946 cannot be considered unless it is filed before the expiration of six years from the date of the registration or from the date of publication under section 12(c) of the Act. The certificate of mailing procedure provided by §1.8 does not apply to affidavits or declarations or to supplemental or substitute affidavits or declarations filed under section 8 (a) or (b) of the Act, but the certificate of mailing by "Express Mail" procedure provided by §1.10 does apply thereto.

(2) A request for reconsideration shall be a condition precedent to a petition to the Commissioner to review the refusal of the affidavit or declaration unless the first action refusing the affidavit or declaration directs the registrant to petition the Commissioner for relief, in which event the petition must be filed within six months from the date of mailing of the action.

(b) If the refusal of the affidavit or declaration is adhered to, the registrant may petition the Commissioner to review the action under §2.146(a)(2). The petition to the Commissioner requesting review of the action adhering to the refusal of the affidavit or declaration must be filed within six months from the date of mailing of the action which denied reconsideration.

(c) The decision of the Commissioner on the petition will constitute the final action of the Patent and Trademark Office. If there is no petition to the Commissioner, the Commissioner will notify the registrant of the refusal of the affidavit or declaration after the expiration of six years from the date of registration or from the date of publication under section 12(c) of the Act of 1946, and such notice will constitute the final action of the Office.

(d) A petition to the Commissioner for review of the action shall be a condition precedent to an appeal to or action for review by any court.

40. Section 2.173 is amended by revising paragraph (b) to read as follows:

§2.173 Amendment; disclaimer in part.

* * * * *

(b) No amendment in the identification of goods or services in a registration will be permitted except to restrict the identification or otherwise to change it in ways that would not require republication of the mark. No amendment seeking the elimination of a disclaimer will be permitted.

* * * * *

41. Section 2.184 is revised to read as follows:

§2.184 Refusal of renewal.

(a) If the application for renewal is incomplete or defective, the renewal will be refused. The application may be completed or amended in response to a refusal, subject to the provisions of §2.183. If a response to a refusal of renewal is not filed within six months from the date of mailing of the action, the application for renewal will be considered abandoned. A request to reconsider a refusal of renewal shall be a condition precedent to a petition to the Commissioner to review the refusal of renewal.

(b) If the refusal of renewal is adhered to, the registrant may petition the Commissioner to review the action under §2.146(a)(2). The petition to the Commissioner requesting review of the action adhering to the refusal of the renewal must be filed within six months from the date of mailing of the action which adhered to the refusal. If a timely petition to the Commissioner is not filed, the application for renewal will be considered abandoned.

(c) The decision of the Commissioner on the petition will constitute the final action of the Patent and Trademark Office.

(d) A petition to the Commissioner for review of the action shall be a condition precedent to an appeal to or action for review by any court.

42. Section 2.186 is revised to read as follows:

§2.186 Action may be taken by assignee of record.

Any action with respect to an assigned application or registration which may or must be taken by a registrant or applicant may be taken by the assignee provided that the assignment has been recorded.

Apr. 28, 1983.

DONALD J. QUIGG,
Deputy Commissioner of Patents and Trademarks.

[FR Doc. 83-13500 Filed 5-20-83; 8:45 am]
BILLING CODE 3510-6-M

[1031 TMOG 12]

(127) Initial Processing of Application

On Feb. 1, 1972, the operations of the Trademark Application Section of the Patent Office will be reorganized. The purpose of the reorganization is to provide the public and applicants with more current information concerning newly filed applications.

The prompt initial processing of trademark applications is necessary in order to fulfill one of the main Patent Office functions, that of producing a record, accessible to the public, of new trademark activity to facilitate the clearance of new marks for use, determine the registrability of proposed marks, and avoid conflicts with the rights of others. In order to maintain a record of marks applied for which reflects the most current information available to the Office concerning them, the early processing of drawings in order to have them placed in the search room is considered as a first priority. The processing of these drawings includes the assignment of serial numbers, initial classification, duplication of the drawing and the forwarding of copies of the drawing to the search room. Other functions which are necessary in the processing of applications, such as the processing and mailing of filing receipts, are secondary to the processing of drawings.

In past years, there have been delays in processing applications and forwarding application drawings to the search room. These delays have varied from several weeks to several months. In view of the importance, both to applicants and the public, of recording essential information concerning newly filed applications as quickly as possible, a reorganization of the workflow in

the Application Section is being effected.

There is no change in the processing of applications through the mail room and finance branch to the Application Section. However, under the new plan, upon receipt in the Trademark Application Section, all applications will be stamped with a serial number, and the drawing of the mark will be reproduced immediately and placed in the search file. This processing will occur as soon as the application files reach the Application Section. Such procedures as determining whether or not an application will receive a filing date, preparation of the file jackets, and mailing of the filing receipt will take place at a later time.

Applicants who wish to be notified promptly of the date their papers were received in the office and their serial number, may send two self-addressed postcards with their application papers. The mail room will stamp both postcards with the date of receipt and return one to the applicant; the second postcard will be stamped with the serial number and forwarded to the applicant from the Application Section. The postcards should contain the applicant's name and the trademark which is the subject of the application. When more than one set of application papers are forwarded under one cover, postcards should be attached to each set of papers for which a receipt is desired.

Under the new system of processing application papers, your particular attention is directed to the following changes as compared to the present procedure.

1. Application drawings will be placed in the public search file prior to the mailing of the filing receipt.

2. By using the postcard system described above, applicants will be notified sooner of the date of receipt of their papers and the serial number of their application. Applicants are encouraged to use the postcard system.

3. Additional papers sent in by the applicant or attorney should be identified by serial number, thereby enabling the office to process these papers quickly.

4. When an application is accompanied by a petition to the Commissioner under §2.146, the petition will not be considered until processing by the Application Section is complete.

Effective date. The procedure outlined in this notice will become effective Feb. 1, 1972.

RICHARD A. WAHL,
Jan. 11, 1972. *Acting Commissioner of Patents.*
JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

Published in 37 F.R. 942; Jan. 21, 1972

[895 O.G. TM 193]

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(128) **Petition to Make Trademark Applications Special**

The practice of expediting the prosecution of new trademark applications on request of the applicant (accelerated prosecution) was rescinded, effective Aug. 1, 1971 (36 F.R. 13231, July 16, 1971; 825 O.G. 2). This action was taken after a careful study of the practice, including a recommendation of the Public Advisory Committee for Trademark Affairs that the Patent Office terminate accelerated prosecution of trademark applications. The study considered both the effect of the procedure on the workload of the Trademark Operations and the broader interest of examining trademark applications in an order which is equitable to all applicants.

Since the termination of this practice, the Office has experienced some increase in the number of petitions requesting the Commissioner to invoke his supervisory authority pursuant to Rule 2.146 in order to advance the examination of applications out of their regular order. This was to be expected since applicants who might have been able to show special circumstances entitling them to advanced examination could previously achieve this special treatment without resorting to a petition. However, some of the petitions now being received are not considered sufficient to justify the extraordinary relief of invoking the supervisory authority of the Commissioner for the purpose of advancing the applications out of their regular order.

In particular, a number of such petitions have been based on the ground that the applicant is about to embark on an advertising campaign or to commit advertising or promotional expenditures in which the mark applied for is material. Such a ground is not considered to constitute appropriate circumstances justifying the advancement of the application out of its regular turn and the petitions based on such ground have been and will continue to be denied. The principal reason for the denial is that these circumstances are applicable to a substantial portion of the trademark applications filed in the Patent Office. The supervisory authority of the Commissioner should be exercised only where an extraordinary reason for such action has been disclosed. See *Anderson & Dyer* v. *Lewry*, 89 O.G. 1861, 1899 C.D. 230, and *Wilputte* v. *Van Ackeren*, 103 USPQ 235. Thus, the extraordinary remedy of invoking the supervisory authority of the Commissioner is not considered appropriate under these circumstances.

In the interest of equitable treatment of all applicants, the policy of the Office in granting such petitions will be restricted to those cases in which particular and very special circumstances exist, such as a demonstrable possibility of loss of substantial rights, rather than circumstances which would be equally applicable to a large number of other applicants for trademark registration.

ROBERT GOTTSCHALK,
Mar. 13, 1972. *Commissioner of Patents.*

[897 O.G. TM 2]

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(129) **Realignment of Patent Office Handling of Opposition Papers**

In order to increase efficiency in processing papers, all activities connected with the handling of oppositions have been transferred from the Trademark Examining Operation to the Trademark Trial and Appeal Board. As a result of the transfer, requests for extension of time to oppose and matters pertinent thereto are now received and processed by the staff of the Trademark Trial and Appeal Board rather than by the staff of the Office of the Director of the Trademark Examining Operation.

No substantial change in procedure in the handling of papers relative to oppositions and extensions of time is contemplated by this realignment of duties in the Patent Office. Reasonable requests for extensions of time to oppose will continue to be granted with liberality particularly if there is no protest by another party and if the parties are negotiating or otherwise exploring bases for settlement, and fees for both verified and unverified oppositions will continue to be required to be filed within the time prescribed for opposing.

RENE D. TEGTMEYER,
Nov. 14, 1974. *Assistant Commissioner for Trademarks.*

[929 O.G. TM 62]

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(130) **Standardized Disclaimers**

Beginning with the Nov. 9, 1982 issue of the *Official Gazette*, disclaimers in marks published for opposition and in those registered on the Supplemental Register will be printed in a standardized form, regardless of the text submitted. Certificates of registration for marks issued on the Supplemental Register will also contain the standardized disclaimer as of that date. Certificates of registration for marks issued on the Principal Register will contain the uniform statement beginning Feb. 1, 1983. The disclaimed matter will be taken from the disclaimer of record and inserted into a standardized disclaimer for printing and data base purposes. The new disclaimer text will take the following form:

No claim is made to the exclusive right to use ——, apart from the mark as shown.

MARGARET M. LAURENCE,
Aug. 30, 1982. *Assistant Commissioner for Trademarks.*

(131) **Conference of Parties in Trademark Inter Partes Proceedings**

Under the inter partes rules of procedure in trademark cases effective July 1, 1972 (898 O.G. TM 170, May 16, 1972), the interlocutory phases of trademark inter partes proceedings are becoming increasingly involved, and the experience of the Trademark Trial and Appeal Board has been that the difficulties in such proceedings can frequently be resolved more satisfactorily and quickly by conference in person than by correspondence or telephone. Therefore, effective immediately, the following practice is being adopted:

Whenever it appears to the Trademark Trial and Appeal Board that questions or issues arising during the interlocutory phase of a trademark inter partes proceeding have become so complex that their resolution by correspondence or telephone is not practical and would be likely to be facilitated by conference in person of the parties and/or their attorneys with a member or members of the Trademark Trial and Appeal Board, the Board may at its discretion suggest that the parties and/or their attorneys, under circumstances which will not result in undue hardship for any party, meet with the Board at its offices in Crystal Plaza, Arlington, Va., to discuss the resolution of difficulties.

C. MARSHALL DANN,
Feb. 3, 1975. *Commissioner of Patents and Trademarks.*

[932 O.G. TM 2]

(132) **International Protection of Government Emblems and Seals**

Change of Intent

The Patent and Trademark Office, Department of Commerce, intends to forward only the 50 State seals plus one department seal for each department listed in the publication "Seals and Other Devices in Use at the Government Printing Office" ("Seals") instead of the entire publication, as indicated on page 59366 of the Federal Register of Dec. 23, 1975.

Since the publication had been printed in 1975, it was assumed that few deletions and additions would be necessary. However, the response to the above notice, along with some necessary deletions, resulted in a large number of seals in the publication requiring deletion. This rendered the publication unacceptable for submission to the World Intellectual Property Organization (WIPO).

Therefore, the Patent and Trademark Office now intends to forward only the 50 State seals along with the departmental seal denoted "No. 1" for each department listed in the "Seals" publication. If this is not the preferred departmental or State seal, the department or State involved is requested to notify the Patent and Trademark Office by Sept. 21, 1976. This notification should either specify the number of the preferred seal, as it appears in the "Seals" publication, or provide a clear, black and white photograph, suitable for reproduction, of the preferred seal. The seal must be no larger than 1 1/2 inches in diameter.

These seals will then be forwarded to WIPO for protection under Article 6*ter* of the Paris Convention for the Protection of Industrial Property.

Address all correspondence to: Commissioner of Patents and Trademarks, Washington, D.C. 20231.

C. MARSHALL DANN,
Aug. 18, 1976. *Commissioner of Patents and Trademarks.*

Published in 41 F.R. 35741
[950 O.G. TM 114]

(133) **Recording of "Territorial Assignments" in the Assignment Division of the Patent and Trademark Office**

It has been the practice of the Assignment Division for many years to refuse to record "territorial assignments," that is, assignments purporting to transfer rights in a trademark registration (not a concurrent use registration) for less than the entire United States. Hereinafter, such documents will be recorded as long as the requirements of the Rules of Practice are met by the documents submitted.

The Office is not addressing the validity or effect of such documents by recording same, but is merely recognizing that such transfers may affect title to a registered mark and therefore ought to be recorded. At the time a Section 8 affidavit or declaration or an application for renewal is filed, the Examiner of Trademarks will consider the effect of such a document.

BERNARD A. MEANY,
Oct. 7, 1977. *Assistant Commissioner for Trademarks.*

[964 TMOG 8]

(134) **Trademark Rule 2.165 Requirement Where A Section 8 Affidavit Or Declaration Is Held Insufficient**

Several recent Petitions to the Commissioner have indicated a failure on the part of registrants and their attorneys to follow the requirements of Trademark Rule 2.165. Therefore, reviewing certain basic elements of this rule is considered timely so as to alert registrants and attorneys to technical errors which might lead to the cancellation of a valuable trademark registration.

Part (*a*) of Rule 2.165 indicates that the examiner will notify the registrant when an affidavit or declaration of use under Section 8 of the Statute is insufficient and the reasons therefor. When the registrant wishes the examiner to reconsider the affidavit or declaration, or when the registrant has taken additional steps to rectify the deficiencies and desires to have the examiner reconsider the affidavit or declaration in light of those steps, the request for reconsideration must be submitted within 6 months of the date of mailing of the notice of insufficiency.

Note, however, that a supplemental or substitute affidavit or declaration required by Section 8 cannot be considered unless it is received before the expiration of the six year anniversary of the registration. Consequently, registrants should file their affidavits as early as possible during the sixth year following registration.

There are situations where correcting the deficiency in the affidavit or declaration requires recording an assignment with the Assignment Division of this Office. If the recording cannot be completed within 6 months, the registrant must at least respond to the examiner's notice of insufficiency within that period. The response must indicate the steps being taken to correct the deficiency. The examiner can then allow the registrant additional time or suspend action depending on the circumstances. Registrants must always observe the "six month response" period whenever responding to the examiner from an adverse action.

Part (*b*) of Rule 2.165 permits a registrant to request the Commissioner to review the action of the examiner when he is dissatisfied with that action. Review by the Commissioner should be sought only where it is believed that the examiner has erred in his action. In other words, the Commissioner's role is to review the correctness of the examiner's action and not to serve as an alter ego of the examiner before whom the registrant may seek to correct deficiencies.

When review by the Commissioner has been sought,

the decision on that request constitutes the final action of the Patent and Trademark Office. If no review by the Commissioner is sought and if no request for reconsideration of an examiner's action is timely filed, the Commissioner will notify the registrant of the deficiency in the affidavit or declaration after the sixth year has expired. Such notice is never mailed prior to the expiration of the sixth year following registration nor until a reasonable time has elapsed following a six month period from the last action mailed by this Office. This notice constitutes the final action of the Patent and Trademark Office in those cases where the Commissioner's review has not been sought. Once this notice has been mailed, it is too late (under the Rules of Practice) to request the Commissioner to review the action of the examiner. Review would only be proper if an affiant could show circumstances sufficient to suspend the finality element of Rule 2.165(b) pursuant to Rule 2.148.

Registrants will be held to strict compliance with Rule 2.165 as it has been briefed above. Therefore, parties are urged to respond fully as soon as possible after an action is received from the examiner.

BERNARD A. MEANY,
Dec. 12, 1977. *Assistant Commissioner for Trademarks.*

[966 TMOG 80]

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(135) **Dissemination Of Trademark Information**

In order to clarify the policy regarding Trademark Examiners giving out Trademark information to the general public, the following directive has been promulgated:

Trademark Examiners are reminded that they may only be responsive to questions regarding applications pending before them. All other questions regarding Trademark matters must be directed to the Director of the Trademark Examining Operation, 703-557-3268.

BERNARD A. MEANY,
Feb. 15, 1978. *Assistant Commissioner for Trademarks.*

[968 TMOG 9]

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(136) **Notice To Purchasers Of Trademark Indices**

An incorrect stock number has been assigned to the "1976 Index of Trademarks."

The correct stock number to be used when ordering the "1976 Index of Trademarks" through the Superintendent of Documents is as follows: 003-004-00532-7. The cost of this publication is $8.00 per copy.

RICHARD J. SHAKMAN,
Mar. 14, 1978. *Assistant Commissioner for Administration.*

[969 TMOG 2]

(137)

TRADEMARK REGISTRATION TREATY

At the conclusion of the Vienna Diplomatic Conference on industrial property, the Trademark Registration Treaty was signed on June 12, 1973 for the United States. This Treaty is designed to simplify the procedures for obtaining international registration of trademarks for United States companies doing business abroad.

The Treaty was unanimously adopted at the final plenary session. In addition to the United States, the United Kingdom, the Federal Republic of Germany, Italy, Portugal, Hungary, San Marino and Monaco also signed. Some forty-six countries were represented at the Conference. In their closing statements most of the other delegations present indicated their hope to sign before the end of the year. The Treaty remains open for signature through Dec. 31, 1973. The Treaty will enter into force six months after five States have deposited their instruments of ratification or accession.

The negotiations at Vienna represent the climax of the work of several committees of experts and working groups which have met at Geneva since 1970 with the assistance of the World Intellectual Property Organization (WIPO). The U.S. delegation to the Vienna Conference was composed of officials from the Department of State, the U.S. Patent Office and advisors from the private sector. Previous versions of the proposed Treaty were published on Feb. 22, 1972; Sept. 19, 1972; and Feb. 20, 1973, in the Official Gazette *of the U.S. Patent Office. Published in this issue is the complete text of the Trademark Registration Treaty and its Regulations, as adopted by the Conference. For convenience, in addition to the text of the Articles and Regulations as adopted there is included a table of contents at the end of each section.*

Additional copies of this material are available upon request to the Commissioner of Patents.

ROBERT GOTTSCHALK,
Commissioner of Patents.

June 22, 1973.

TRADEMARK REGISTRATION TREATY

Adopted at Vienna, June 12, 1973

INTRODUCTORY PROVISIONS

Article 1

Establishment of a Union

The States party to this Treaty (hereinafter called "the Contracting States") constitute a Union for the international registration of marks.

Article 2

Abbreviated Expressions

For the purposes of this Treaty and the Regulations and unless expressly stated otherwise:

(i) "international registration" means a registration effected under this Treaty by the International Bureau in the International Register of Marks;

(ii) "international application" means an application filed for international registration;

(iii) "applicant" means the natural person who or legal entity which files the international application;

(iv) "owner of the international registration" means the natural person or the legal entity in whose name the international registration stands in respect of all or fewer than all the designated States and in respect of all or some only of the goods and/or services listed in that registration;

(v) "mark" means both a trademark and a service mark; it also includes a collective mark within the meaning of Article 7*bis* of the Stockholm (1967) Act of the Paris Convention for the Protection of Industrial Property and a certification mark whether or not such certification mark is a collective mark within the said meaning;

(vi) "national mark" means a mark registered by a government authority of a Contracting State having the power to grant registrations with effect in that State; references to a *national mark* shall not be construed as references also to regional marks;

(vii) "regional mark" means a mark registered by an intergovernmental authority other than the International Bureau having the power to grant registrations with effect in more than one State;

(viii) references to any *final* decision or *final* refusal shall be construed as references to a decision or refusal against which there is no remedy, or against which all remedies have been exhausted, or where the time limit for asking for a remedy against the refusal or decision has expired;

(ix) references to any *publication by the International Bureau* shall be construed as references to publications effected in the official Gazette of that Bureau;

(x) references to the *date of the publication* of the international registration or to the *date of the publication* of the recording of the later designation shall be construed as references to the date of that issue of the official Gazette of the International Bureau in which the international registration or the recording of the later designation, as the case may be, has been published;

(xi) references to any *recording by the International Bureau* shall be construed as references to recordings made in the International Register of Marks;

(xii) "designated State" means any Contracting State in which the applicant or the owner of the international registration desires that such registration produce the effects provided for in this Treaty and which has been identified for that purpose in the international application or any request for the recording of later designations;

(xiii) "national Office" means the government authority of a Contracting State entrusted with the registration of marks; references to a *national Office* shall be construed as referring also to any intergovernmental authority which several States have entrusted with the task of registering regional marks, provided that at least one of those States is a Contracting State, and provided that such authority has been empowered to assume the obligations and exercise the powers which this Treaty and the Regulations provide for in respect of national Offices;

(xiv) "national register of marks" means the register of marks kept by a national Office in which national and/or regional marks are registered;

(xv) "designated Office" means the national Office of the designated State;

(xvi) references to *national law* shall be construed as references to the national law of a Contracting State and, where a regional mark is involved, to the regional treaty providing for the registration of regional marks;

(xvii) "Madrid Agreement" means the Madrid Agreement Concerning the International Registration of Marks;

(xviii) "Union" means the Union referred to in Article 1;

(xix) "Assembly" means the Assembly of the Union;

(xx) "Organization" means the World Intellectual Property Organization;

(xxi) "International Bureau" means the International Bureau of the Organization and, as long as it subsists, the United International Bureau for the Protection of Intellectual Property (BIRPI); and where any provision refers to the receiving of documents, or of payments, by the International Bureau, it also includes any agency of that Bureau established under Article 32(2)(a)

(ix);
(xxii) "Director General" means the Director General of the Organization;
(xxiii) "International Classification" means the classification established under the Nice Agreement Concerning the International Classification of Goods and Services for the Purposes of the Registration of Marks;
(xxiv) "Regulations" means the Regulations referred to in Article 35.

CHAPTER I: SUBSTANTIVE PROVISIONS

Article 3

International Register of Marks

(1) [*International Registrations*] The International Bureau shall register marks in the International Register of Marks according to the provisions of this Treaty and the Regulations.

(2) [*International Applications*] International registrations shall be effected in the basis of international applications.

Article 4

Right To File International Applications and To Own International Registrations

(1) [*Entitlement*] (a) Any resident or national of a Contracting State may file international applications and may own international registrations.

(b) If there are several applicants, they shall have the right to file an international application only if all of them are residents of nationals of Contracting States.

(c) If there are several owners of an international registration, they shall have the right to own such a registration only if all of them are residents or nationals of Contracting States.

(2) [*Natural Persons*] (a) Any natural person shall be regarded as a resident of a Contracting State if:
(i) according to the national law of that State, he is a resident of that State, or
(ii) he has a real and effective industrial or commercial establishment in that State.

(b) Any natural person shall be regarded as a national of a Contracting State if, according to the national law of that State, he has the nationality of that State.

(3) [*Legal Entities*] (a) Any legal entity shall be regarded as a resident of a Contracting State if it has a real and effective industrial or commercial establishment in that State.

(b) Any legal entity shall be regarded as a national of a Contracting State if it is constituted according to the national law of that State.

(4) [*Different Residence and Nationality*] If the State of the residence and the State of the nationality of the applicant or owner of the international registration are different, and only one of those States is a Contracting State, the Contracting State alone shall be considered for the purposes of this Treaty and the Regulations.

(5) [*Certain Associations*] Where under the national law of any Contracting State an association of natural persons or legal entities may own marks notwithstanding the fact that it is not a legal entity, it shall be entitled to file international applications and to own international registrations, provided it is a resident or national of that State within the meaning of paragraph (3).

(6) [*Domestic Filing*] (a) The national law of any Contracting State may provide that, where the applicant is both a resident and a national of that State, an international application may be filed only if the mark that is the subject of the international application is, at the time of the filing of that application, the subject of an application for registration, in the name of the said applicant, in the national register of marks of that State in respect of at least those goods and/or services listed in the international application.

(b) Subparagraph (a) shall not apply where, at the time of the filing of the international application, the mark that is the subject of the international application is already registered in the name of the applicant in the national register of marks of the said State in respect of the said goods and/or services.

Article 5

The International Application

(1)(a) [*Mandatory Contents*] The international application shall contain, as specified in this Treaty and the Regulations:
(i) an indication that it is filed under this Treaty,
(ii) indications concerning the applicant's identity, residence, nationality, and address,
(iii) a reproduction of the mark,
(iv) a list of goods and/or services in which the terms are grouped under the applicable classes of the International Classification and in which each term is comprehensible, permits classification in one class only of that Classification, and, as far as possible, is one that appears in the alphabetical list of goods and/or services of the said Classification,
(v) the identification of the designated State or States,
(vi) in respect of any designated State in which the effects provided for in this Treaty are available either as if the mark had been applied for and registered as a national mark or as if the mark had been applied for and registered as a regional mark, an indication of the choice between the two,
(vii) in respect of any designated State in which the effects provided for in this Treaty are desired as for a collective mark or a certification mark, an indication to that effect.

(b) [*Optional Contents*] The international application may contain a declaration, as provided in the Regulations, claiming the priority of one or more earlier applications filed in or for any country party to the Paris Convention for the Protection of Industrial Property. Furthermore, the international application may contain such additional indications as are provided for in other provisions of this Treaty and in the Regulations.

(c) [*Language, Form, Signature, Fees*] The international application shall be in a prescribed language and in the prescribed form, shall be signed as provided in the Regulations, and shall be subject to the payment of the prescribed fees.

(2) [*Filing With International Bureau*] International applications shall be filed direct with the International Bureau.

(3) [*Filing Through National Office*] (a) Notwithstanding paragraph (2) but subject to subparagraph (c), the national law of any Contracting State may provide that international applications of residents of that State may be filed through the intermediary of the national Office of the said State.

(b) Where the international application is filed through the intermediary of a national Office competent under subparagraph (a), that Office shall indicate on the international application the date on which it received that application and shall promptly transmit the same to the International Bureau, as provided in the Regulations.

(c) Any Contracting State on whose territory an agency of the International Bureau, established under Article 32(2)(a)(ix), is functioning shall, at least for the time such agency functions, suspend the application of any provision of its national law referred to in subparagraph (a) and Article 6(3)(a).

Article 6

Later Designation

(1) [*Possibility of Later Designation*] Any Contracting

State not designated in the international application or whose designation has ceased to have the effects provided for in Article 11 may be designated by the applicant or, once the international registration has been effected, by the owner of the international registration, as provided in the Regulations ("later designation").

(2)(a) [*Mandatory Contents; Filing With International Bureau*] Any later designation shall be the subject of a request for the recording of later designations. Several States may be designated in the same request. The request shall be filed direct with the International Bureau and shall contain, as specified in the Regulations:

(i) an indication that it is for the recording of later designations under this Treaty,
(ii) indications concerning the identity, residence, nationality and address of the applicant or, where the international registration has already been effected, of the owner of the international registration,
(iii) the identification of the international application or, where the international registration has already been effected, of such registration,
(iv) the identification of the later designated State or States,
(v) in respect of any later designated State in which the effects provided for in this Treaty are available either as if the mark has been applied for and registered as a national mark or as if the mark had been applied for and registered as a regional mark, an indication of the choice between the two,
(vi) in respect of any later designated State in which the effects provided for in this Treaty are desired as for a collective mark or a certification mark, an indication to that effect.

(b) [*Optional Contents*] The request may contain a declaration, as provided in the Regulations, claiming the priority of one or more earlier applications filed in or for any country party to the Paris Convention for the Protection of Industrial Property. Furthermore, the request may contain in respect of any State designated therein a list of goods and/or services, provided that, if that list is different from the list of goods and/or services included in the international registration as published or, if the international registration has not yet been published, from the list of goods and/or services included in the international application after any limitation under Article 7(4), it shall conform with the formal concept of limitation as defined in the Regulations. Finally, the request may contain such additional indications as are provided for in other provisions of this Treaty and in the Regulations.

(c) [*Language, Form, Signature, Fees*] The request shall be in a prescribed language and in the prescribed form, shall be signed as provided in the Regulations, and shall be subject to the payment of the prescribed fees.

(3) [*Filing Through National Office*] (a) Notwithstanding paragraph (2)(a) but subject to Article 5(3)(c), the national law of any Contracting State may provide that requests for the recording of later designations by residents of that State may be filed through the intermediary of the national Office of the said State.

(b) Where the request for the recording of later designations is filed through the intermediary of a national Office competent under subparagraph (a), that Office shall indicate on the request the date on which it received that request and shall promptly transmit the same to the International Bureau, as provided in the Regulations.

Article 7

International Registration or Declining of the International Application

(1) [*No Defects*] Subject to paragraphs (2) to (5), the International Bureau shall promptly effect the international registration as applied for, and the date under which such registration shall be effected ("international registration date") shall be the date on which the international application was received by the International Bureau or, in the case of an international application filed through the intermediary of a national Office under Article 5(3), the date on which it was received by that Office provided that the said application is received by the International Bureau before the expiration of 45 days from that date. The International Bureau shall issue to the owner of the international registration a certificate of international registration.

(2) [*Defects Which Necessarily Entail a Later Registration Date*] (a) Where the International Bureau finds any of the following defects, that is to say, where:

(i) the international application does not contain an indication that it is filed under this Treaty,
(ii) the international application is in a language other than one of the prescribed languages,
(iii) the international application contains no indications concerning the residence or nationality of the applicant or only such indications as do not permit the conclusion that he has the right to file international applications,
(iv) the international application contains no indications concerning the applicant's identity and address or only such indications as do not permit him to be identified and reached by mail,
(v) the international application does not include the reproduction of the mark,
(vi) the international application does not contain a list of goods and/or services,
(vii) the international application does not designate any Contracting State,
(viii) no fees have been received by the International Bureau on or before the date on which the international application is received by the Bureau or, where the international application is filed through the intermediary of a national Office under Article 5(3), no fees have been received by the International Bureau within 45 days from the date on which that Office received the international application,
(ix) the amount of the fees received by the International Bureau by the date referred to in item (viii) does not attain the amount ("minimum amount") fixed in the Regulations, it shall invite the applicant to correct the defect; however, where the defect referred to in item (iv) makes it unlikely for the invitation to reach the applicant, the International Bureau is not required to send such invitation.

(b) If the defect is not corrected within three months from the date on which the International Bureau received the international application, the International Bureau shall decline that application.

(c) If the defect is corrected within the time limit referred to in subparagraph (b) and unless the international application is declined under paragraph (3)(b), the International Bureau shall effect the international registration, and the international registration date shall be the date on which that Bureau received the required correction or the prescribed amount of the fees, unless a later date is applicable under paragraph (3)(d).

(3) [*Defects Which Do Not Necessarily Entail a Later Registration Date*] (a) Where the International Bureau finds any of the following defects, that is to say, where:

(i) the amount of the fees received by the International Bureau by the date referred to in paragraph (2)(a)(viii) is less than the amount prescribed but attains the minimum amount,
(ii) the international application does not contain, in respect of any designated State to which Article 5(1)(a)(vi) applies, the indication of the choice referred to in the said provision,
(iii) the international application is not signed, it shall invite the applicant to correct the defect.

(b) If the defect is not corrected within three months from the date on which the International Bureau received the international application, the International Bureau shall decline that application or, if the only defect which is not corrected within the said time limit is

the defect referred to in subparagraph (a)(ii), the International Bureau shall decline to record the State concerned as a designated State.

(c) If the defect is corrected before the expiration of one month from the date of the invitation referred to in subparagraph (a) and unless the international application is declined under subparagraph (b) or paragraph (2)(b), the International Bureau shall effect the international registration, and the international registration date shall be the date referred to in paragraph (1), unless a later date is applicable under paragraph (2)(c).

(d) If the defect is corrected later than at the expiration of one month from the date of the invitation referred to in subparagraph (a) but earlier than at the expiration of three months from the date on which the International Bureau received the international application, and unless the international application is declined under paragraph (2)(b), the International Bureau shall effect the international registration, and the international registration date shall be the date on which that Bureau received the required correction or payment, unless a later date is applicable under paragraph (2)(c).

(4) [*Classification Causing Increase in Fees*] (a) Where the International Bureau finds that, by classifying any of the terms appearing in the list of goods and/or services in or also in a class or classes of the International Classification in which such term was not classified in the international application as filed, the amount of the fees required is higher than if that term had not been so classified, the invitation referred to in paragraph (2)(a) or (3)(a) shall contain appropriate explanations and shall indicate that the applicant may limit the list of goods and/or services.

(b) If, within three months from the date on which the International Bureau received the international application, it receives from the applicant a statement which limits the list of goods and/or services in conformity with the formal concept of limitation as defined in the Regulations, the International Bureau shall modify the list of goods and/or services accordingly and, if such modification entails a change in the prescribed amount of the fees, such change shall be taken into account by the International Bureau in determining that amount and in applying paragraph (2)(b), (2)(c), (3)(b), (3)(c), or 3(d), as the case may be.

(5) [*Details*] (a) The Regulations shall provide for the details of the procedure under paragraphs (1) to (4).

(b) Failure to send or receive any invitation referred to in paragraphs (2) to (4), or any delay in dispatching or receiving it, or any error therein, shall not extend the time limits fixed in those paragraphs and shall not affect any obligation to decline the international application.

(c) Where the international application is declined, the International Bureau shall reimburse to the applicant such amounts as are specified in the Regulations.

(6) [*Defects Peculiar to Filings Through National Offices*] Where the international application filed through the intermediary of a national Office under Article 5(3):

(i) does not indicate that the applicant is a resident of the State through the intermediary of whose national Office the international application was filed, or

(ii) does not contain a statement by the said national Office indicating the date on which that Office received the international application, or

(iii) contains the said statement indicating a date which precedes by more than 45 days the date on which the International Bureau received the international application, that application shall be treated as if it had been filed direct with the International Bureau on the date it reached that Bureau.

Article 8

Recording or Declining of Later Designations

(1) [*No Defects*] Subject to paragraph (2), the International Bureau shall promptly effect the recording of any later designation as requested, and the date under which such recording shall be effected ("recording date of the later designation") shall be the date on which the request for the recording of the later designation was received by the International Bureau or, in the case of a request filed through the intermediary of a national Office under Article 6(3), the date on which it was received by that Office, provided that the said request is received by the International Bureau before the expiration of 45 days from that date. The International Bureau shall issue to the owner of the international registration a certificate of the recording of the later designation.

(2) [*Defects*] (a) The provisions of Article 7(2) to (6) shall apply, *mutatis mutandis*, to the recording of later designations and declining of requests for the recording of later designations, provided that, once the international registration has been effected, any reference to the applicant shall be considered a reference to the owner of the international registration.

(b) Notwithstanding subparagraph (a), items (v) and (vi) of Article 7(2)(a) shall be considered to have been replaced by the following:

"(v) the request does not identify the international application or, once the international has been effected, such registration."

(c) Notwithstanding subparagraph (a), Article 7(3)(a) shall be considered to have been completed by the following:

"(iv) any list of goods and/or services contained in the request does not conform with the requirements of Article 6(2)(b), second sentence."

Article 9

Avoiding the Effects of Declining

(1) [*Requesting Redress Through Designated Office*] Where the International Bureau has declined the international application or a request for the recording of later designation, the applicant or the owner of the international registration may, within two months from the date of the notification of the declining, file with the national Office of any State designated in the declined international application or declined request:

(i) a petition for the purpose of requesting the International Bureau to proceed, in respect of that State, where the international application was declined, with the international registration and the recording of the designation of the said State or, where the request for the recording of the later designation was declined, with the recording of the designation of that State, or

(ii) an application for the registration, in the national register of marks ("national application"), of the mark that is the subject of the declined international application or declined request, in respect of all or some of the goods and/or services indicated in the said international application or the said request, such application complying with all the requirements of the national law of the said State for the filing of applications for the registration of marks in the national register of marks.

(2) [*Decision on the Request*] If the national Office or any other competent authority of the said State finds that the declining, by the International Bureau, of the international application or of the request for the recording of the later designation of that State was unjustified under this Treaty or the Regulations, or that the declining was based on the fact that there was a delay in meeting a time limit which must be excused by virtue of Article 29(1), then:

(i) where a petition has been filed under paragraph (1)(i), the said national Office shall request the International Bureau to proceed as provided in that paragraph, and the International Bureau shall proceed as requested, and the international registration date or the recording date of the later designation shall be the same as if the declining had not taken place,

(ii) where a national application has been filed under

paragraph (1)(ii), that application shall, provided it complies with all the requirements of the national law of the said State for the filing of applications for the registration of marks in the national register of marks, be treated as if it had been filed on the date which would have been the international registration date or the recording date of the later designation had the declining not taken place.

(3) [*Recording of the Petition for Redress*] The applicant or the owner of the international registration who files a petition under paragraph (1)(i) shall, at the time of filing the petition, transmit a copy of that petition to the International Bureau. If the petition relates to a mark which is already registered in the International Register of Marks, the International Bureau shall, as provided in the Regulations, record and publish the fact that it has received a copy of such petition; otherwise it shall keep the said copy in its files.

Article 10

Publication and Notification

(1) [*Publication*] International registrations and recordings of later designations shall be promptly published by the International Bureau, as provided in the Regulations.

(2) [*Notification*] International registrations and recordings of later designations shall be promptly notified by the International Bureau to the national Offices of each designated State, as provided in the Regulations.

Article 11

Effects of International Registration and of Recording of Later Designation

(1) [*National Application Effect*] The international registration of a mark and the recording of any later designation, published and notified as provided in Article 10, shall have the same effect in each designated State as if an application for the registration of the mark in the national register of marks had been filed with the national Office of that State on the international registration date or on the recording date of the later designation, as the case may be.

(2) [*National Registration Effect*] Furthermore, the said international registration and recording shall, subject to Articles 12 and 13, have the same effect in each designated State as if the mark had been registered in the national register of marks of that State; such effect shall come into existence in any designated State:

(i) where no refusal or notice that a refusal may eventually be pronounced ("notice of possible refusal") has been notified by the national Office of that State within the time limit fixed in Article 12(2)(a)(i), at the expiration of the said time limit or on such earlier date as may be prescribed by the national law of that State,

(ii) where a refusal or a notice of possible refusal has been notified by the national Office of that State within the time limit fixed in Article 12(2)(a)(i), if and when, and to the extent to which, the refusal is reversed by a final decision or the final decision taken in the proceedings referred to in the notice of possible refusal results in acceptance of the effect provided for in this paragraph,

and shall be deemed to have started as of the international registration date or the recording date of the later designation, as the case may be.

(3) [*Several National Registers*] Where, in any designated State, there is more than one national register of marks or the national register of marks has several parts, the reference in paragraphs (1) and (2) to the national register of marks shall be construed as a reference to that national register or that part of the national register which affords the highest degree of protection, unless another register or part of the register is indicated in the international application or the request for the recording of the later designation. In the case of such indication, the reference in paragraphs (1) and (2) to the national register of marks shall be construed as a reference to the register or part of the register so indicated.

Article 12

Refusal of the Effects Provided for in Article 11

(1) [*Grounds of Refusal*] Subject to paragraph (2) and Articles 19, 21(3) and 22(3), the effects provided for in Article 11 may, in respect of any designated State, be refused by the competent authorities of that State:

(i) on the same grounds and to the same extent as those in respect of which applications for the registration of marks in the national register of marks may be refused under the national law of the said State, provided that such grounds are not incompatible with this Treaty and the Regulations or the most recent provisions of the Paris Convention for the Protection of Industrial Property by which that State is bound, and provided that Article 6*quinquies* of the Stockholm (1967) Act of the said Convention shall apply also to marks registered under this Treaty, the international registration taking the place, for the purposes of the said Article 6 *quinquies*, of registration in the country of origin,

(ii) on the ground that the owner of the international registration is not entitled to own international registrations or that the applicant was not entitled to file international applications.

(2) [*Time Limit and Other conditions*] (a) Any refusal under paragraph (i) shall be effective only:

(i) if the refusal or notice of possible refusal is notified, as provided in the Regulations, by the national Office of the designated State to the International Bureau so that the latter receives it within 15 months or, in the case of a certification mark, 18 months from the date of the publication of the international registration, or, in the case of a later designation, of the publication of the recording of the later designation of such State, and

(ii) in the case of a refusal, if the grounds for the refusal are specified, and provided, where such refusal is not final, that the grounds given in the final decision of refusal include at least one of the grounds specified in the said refusal and the final decision is or is also based on at least one of the grounds specified in the said refusal,

(iii) in the case of a notice of possible refusal followed by a refusal, if the notice specifies, as provided in the Regulations, the grounds on which a refusal may eventually be pronounced, and provided that the grounds given in the final decision of refusal include at least one of the grounds specified in the said notice and the final decision is or is also based on at least one of the grounds specified in the said notice.

(b) The proviso of subparagraph (a)(ii) and the proviso of subparagraph (a)(iii) shall not apply where the final decision is that of a court or other independent review authority.

(c) Subparagraph (a) shall not apply where the refusal is based on lack of compliance with the requirements of the national law of the designated State permitted by Article 19(3).

(3) [*Remedies*] The owner of the international registration shall, with reasonable time limits, have in any designated State the same remedies against any decision of refusal and the same procedural and substantive rights in connection with any intended refusal, whether ex officio or based on the opposition of a third party, as have applicants who apply for the registration of marks in the national register of marks of the State in question.

(4) [*Procedural Details*] (a) The International Bureau shall record any notification received under paragraph (2)(a) and publish a corresponding notice.

(b) Where the decision of refusal is final, the national Office of the designated State shall notify the International Bureau accordingly, and that Bureau shall record

the final decision, cancel the designation of that State, or, in a case where the final decision relates to some only of the goods and/or services listed, cancel in respect of the said State those goods and/or services to which the said decision relates, and publish such cancellation.

(c) Where a refusal which is not final or a notice of possible refusal has been notified under paragraph (2)(a) and the final decision results in acceptance of the effect referred to in Article 11(2), the national Office of the designated State shall notify the International Bureau accordingly, and the International Bureau shall record the notification received and publish a corresponding notice.

(d) The details of the procedures referred to in subparagraphs (a) to (c) are provided in the Regulations.

Article 13

Cancellation of the Effect Acquired Under Article 11(2)

(1) [*Grounds of Cancellation*] Subject to Article 19, the effect acquired under Article 11(2) may, in respect of any designated State, be cancelled by the competent authorities of that State:

(i) on the same grounds, to the same extent and subject to the same procedure as those in respect of which registrations of marks in the national register of marks may be cancelled under the national law of the said State, provided that such grounds and such procedure are not incompatible with this Treaty and the Regulations or the most recent provisions of the Paris Convention for the Protection of Industrial Property by which that State is bound, and provided that Article 6 *quinquies* of the Stockholm (1967) Act of the Paris Convention for the Protection of Industrial Property shall apply also to marks registered under this Treaty, the international registration taking the place, for the purposes of the said Article 6*quinquies*, of registration in the country of origin,

(ii) on the ground that the owner of the international registration is not entitled to own international registrations or that the applicant was not entitled to file international applications.

(2) [*Defense and Remedies*] The competent authorities of the designated State shall give, with reasonable advance notice, an opportunity to the owner of the international registration to defend his rights in any cancellation proceeding and such owner shall have the same remedies against any decision of cancellation as have owners of marks registered in the national register of marks of the said State.

(3) [*Procedural Details*] If the decision of cancellation is final, the national Office of the designated State shall notify the International Bureau accordingly, and that Bureau shall record that decision, cancel the designation of the said State or, in a case where the cancellation relates to some only of the goods and/or services listed, cancel—in respect of that State—those goods and/or services to which the said decision relates, and publish such cancellation.

Article 14

Change in the Ownership of the International Registration

(1)(a) [*Total or Partial Change; Request; Recording*] Where the ownership of any international registration changes so that the new owner has become the owner in respect of all or fewer than all of the designated States and in respect of all or some only of the goods and/or services, the change in ownership shall, on request, subject to paragraph (2), be recorded by the International Bureau.

(b) [*Details of the Request*] The request shall contain, as provided in the Regulations:

(i) an indication to the effect that the recording by the international Bureau of a change in ownership is requested,

(ii) the international registration number of the international registration,

(iii) indications concerning the name, residence, nationality and address of the new owner,

(iv) the identification of those of the designated States in respect of which the new owner has acquired ownership and the identification, in respect of each of those States, of those of the goods and/or services for which the new owner has acquired ownership.

(c) [*Signature*] The request shall be signed by the person who, pursuant to the change in ownership, ceases to own the international registration in respect of all or fewer than all of the designated States and in respect of all or some only of the goods and/or services ("earlier owner") or, where the earlier owner is unable to sign, by the new owner, provided that if it is signed by the new owner the request shall also contain an appropriate attestation, as provided in the Regulations, by the national Office of the Contracting State of which the earlier owner was, at the time of the change of ownership, a national or, if at that time the earlier owner was not a national of a Contracting State, by the national Office of the Contracting State, of which, at the said time, the earlier owner was a resident.

(d) [*Fee; Publication; Notification*] The request shall be subject to the payment of a fee to the International Bureau, and the recording shall be published by that Bureau and notified by it to the earlier owner and the new owner and to the interested designated Offices, as provided in the Regulations.

(2) [*Declining of Request*] (a) In any of the following cases, the International Bureau shall decline the request and shall notify accordingly the person who has signed it:

(i) Where the request does not contain the indication referred to in paragraph (1)(b)(i),

(ii) where the request does not contain the number referred to in paragraph (1)(b)(ii),

(iii) where the request contains no indications concerning the residence or nationality of the new owner, or only such indications as do not permit the conclusion that he is entitled to own international registrations,

(iv) where the request contains no indications concerning the identity and address of the person who has signed it or only such indications as do not permit him to be identified and reached by mail,

(v) where the request does not identify any designated State in respect of which the new owner has acquired ownership,

(vi) where the request does not identify, as provided in the Regulations, any goods and/or services in respect of each of the designated States for which the new owner has acquired ownership,

(vii) where the request is not signed and, if it is signed by the new owner, where it does not contain the attestation, as provided in the Regulations, referred to in paragraph (1)(c),

(viii) where the prescribed fee has not been received.

(b) Where the request has the defect referred to in subparagraph (a)(iv) to the extent that it makes it unlikely for the notification referred to in subparagraph (a) to reach the person who signed the request, the International Bureau is not required to send such a notification.

(3) [*Effect*] Subject to paragraph (4), any recording effected under paragraph (1) shall, from the date of such recording, have the same effect as if it had been effected in the national register of marks, or any other related register, of each of the designated States to which the request relates.

(4)(a) [*Denial of Effect: Grounds*] The competent authorities of any designated State may, as far as that State is concerned, deny the effect referred to in paragraph (3) on grounds which, according to its national law, do not allow of changes in ownership or on the ground that the new owner is not entitled to own international registrations.

(b) [*Denial of Effect: Evidence*] The national law of any Contracting State may provide that the effect re-

ferred to in paragraph (3) may, as far as such State is concerned, be denied if, within three months from the date of the publication referred to in paragraph (1)(d) or, where that national law provides for a longer period, within that period, evidence is not adduced before its national Office which satisfies the conditions of the national law as regards changes in ownership. Any national Office may collect the fee prescribed by its national law in connection with the examination of the said evidence adduced before it.

(c) [*Denial of Effect: Notification by Designated State; Recording, Notification, Publication*] Where the competent authorities of any designated State deny the effect referred to in paragraph (3), the national Office of that State shall promptly notify the International Bureau accordingly, and that Bureau shall record the denial and effect the corresponding notifications and publication. The details of the procedure are provided in the Regulations.

(5) [*Switchover to National Register Where an Owner Cannot Own International Registrations*] Where there is a change in ownership other than by contract between the earlier owner and the new owner, and where the new owner is a person who is not entitled to file international applications but is entitled under the national law of any designated State to file applications for the registration of marks in the national register of marks of that State, the new owner may file an application for the registration, in the said national register, of the mark which is registered, and in respect of all or some of the goods and/or services which are listed, in the International Register of Marks in respect of that State. If, within two years from the change in ownership and prior to six months after the expiration of the initial term of the international registration or the then running term of renewal, as the case may be, the new owner files such an application, that application shall be treated in the said State as if it had been filed at the time when the designation of that State took effect.

Article 15

Change in the Name of the Owner of the International Registration

(1) [*Recording*] Where the owner of the international registration changes his name, such change in the name of the owner shall, on his request, be recorded by the International Bureau.

(2) [*Request*] (a) Any request may relate to several international registrations of the same owner.

(b) The request shall contain, as provided in the Regulations:

(i) an indication to the effect that the recording by the International Bureau of a change in the name of the owner of the international registration is requested,

(ii) a declaration to the effect that the change in name does not amount to a change in the ownership of the international registration,

(iii) the international registration number of the international registration,

(iv) an indication of the former name and of the new name of the owner of the international registration.

(c) The request shall be signed with the new name of the owner of the international registration.

(d) The request shall be subject to the payment of a fee to the International Bureau.

(3) [*Publication, Notification, Copies of Documents*] The recording shall be published by the International Bureau and shall be notified to the designated Offices, as provided in the Regulations.

(4) [*Declining of Request*] In any of the following cases, the International Bureau shall decline the request and shall notify accordingly the owner:

(i) where the request does not contain the indications referred to in paragraph (2)(b),

(ii) where the request is not signed as provided in paragraph (2)(c),

(iii) where the prescribed fee has not been received.

(5) [*Effect*] Subject to paragraph (6), any recording effected under paragraph (1) shall, from the date of such recording, have the same effect as if it had been effected in the national register of marks, or any other related register, of each of the designated States.

(6)(a) [*Denial of Effect: Evidence*] The national law of any Contracting State may provide that the effect referred to in paragraph (5) may, as far as such State is concerned, be denied if, within three months from the date of the publication referred to in paragraph (3)(a) or, where that national law provides for a longer period, within that period, evidence is not adduced before its national Office which proves that the national person or legal entity designated by the former name and the new name is the same.

(b) [*Denial of Effect: Notification by Designated State; Recording, Notification, Publication*] Where the competent authorities of any designated State deny the effect referred to in paragraph (5), the national Office of that State shall promptly notify the International bureau accordingly, and that bureau shall record the denial and effect the corresponding notifications and publication. The details of the procedure are provided in the Regulations.

Article 16

Limitation of the List of Goods and/or Services

(1) [*Request; Recording*] On the request of the owner of the international registration, the International Bureau shall record, in respect of any designated State, any limitation of the list of goods and/or services which conforms with the formal concept of limitation as defined in the Regulations.

(2) [*Fees; Publication and Notification*] The request for recording shall be subject to the payment of a fee to the International Bureau, and the recording shall be published by that Bureau and notified to all the interested designated States, as provided in the Regulations.

(3) [*Declining of the Request*] The International Bureau shall decline the recording of any change in the list of goods and/or services which does not conform with the said formal concept of limitation or other requirements of the request, and shall notify the owner of the International Registration accordingly, as provided in the Regulations.

(4) [*Effect*] Subject to paragraph (5), any recording effected under paragraph (1) shall, from the date of such recording, have the same effect as if it had been effected in the national register of marks of each of the designated States to which the request relates.

(5)(a) [*Limitation on the Invitation of the Designated Office*] If the national Office or other competent authority of a designated State finds that the limitation requested by the owner of the international registration in respect of that State but declined by the International Bureau is, in fact, a limitation in the sense that the terms proposed in the request relate only to goods and/or services which are covered by the terms appearing in the international registration, the national Office of that State, upon petition by the owner, shall, as provided in the Regulations, invite the International Bureau to record the limitation in respect of that State.

(b) [*Reinstatement of the List of Goods and/or Services on the Invitation of the Designated Office*] If the national Office or other competent authority of a designated State finds that the limitation requested by the owner of the international registration and recorded by the International Bureau is, in fact, not a limitation in the sense indicated in subparagraph (a), the national Office of that State may, as provided in the Regulations and after having heard the owner, invite the International Bureau to reinstate, in respect of that State, wholly or in part, the list of goods and/or services as it was prior to the limitation in question.

(c) [*Procedural Details*] The International Bureau shall proceed as invited and effect, as provided in the Regula-

tions, the corresponding recording, publication and notifications.

Article 17

Term and Renewal of the International Registration

(1) [*Initial Term*] The initial term of any international registration shall be ten years from the international registration date.

(2) [*Renewal*] (a) Any international registration may be renewed in respect of any designated State by its owner for terms of ten years.

(b) Renewal shall prolong the effects provided for in Article 11 in each designated State for the term of the renewal.

(c) Each term of renewal shall start on the day following the day on which the initial term of the international registration or the term of the last renewal expires.

(3)(a) [*Demand*] Renewal shall be the subject of a demand presented to the International Bureau as provided in the Regulations, and shall be subject to the payment of fees, as provided in the Regulations. The demand shall not be presented and the fees shall not be paid earlier than six months before, or later than six months after, the starting date of the term of renewal. If the demand is presented or the fees are received after the starting date of the term of renewal, renewal shall be subject to the payment of an additional fee ("renewal surcharge"), as provided in the Regulations, which shall be paid before the expiration of six months after the starting date of the term of renewal.

(b) [*Publication*] The International Bureau shall record and publish the renewal and shall notify each designated Office accordingly, as provided in the Regulations.

Article 18

Fees

(1) [*Fees Belonging to the International Bureau*] (a) The International Bureau shall be entitled to fees in connection with the filing of each international application, request for recording of later designations, demand for renewal, and such other operations and services as are subject, according to this Treaty or the Regulations, to the payment of fees.

(b) The Regulations fix the amounts of the fees referred to in subparagraph (a).

(2) [*Fees Belonging to the Contracting States*] Each Contracting State shall be entitled to fees ("State fees") in connection with each designation and each renewal concerning it. The State fees shall be either "individual" or "standard," according to the choice of the Contracting State. The choice shall be exercised and applied as provided in the Regulations and shall apply to all designations and renewals concerning the Contracting State.

(3) [*Individual State Fees*] (a) Subject to subparagraphs (b) to (f), the amounts of individual State fees applicable to any State shall be determined by such State.

(b) The amounts of the individual State fees shall be communicated by the national Office of the Contracting State to the International Bureau in the currency and within the time limits specified in the Regulations. They shall remain applicable for the periods specified in the Regulations.

(c) The amounts of the individual State fees may vary only according to the number of classes to which the goods and/or services listed in respect of that State belong under the International Classification and according to whether the mark is or is not a collective mark or a certification mark.

(d) Any individual State fee shall belong to the designated State in respect of which it was paid and shall be transferred to its national Office as provided in the Regulations.

(e) The amount of the individual State fee to which the Contracting State is entitled in connection with each designation concerning it ("individual State designation fee") shall not exceed the total amount of any filing, class, examination, registration and publication fees which that State prescribes in connection with an application for registration in the national register of marks.

(f) The amount of the individual State fee to which the Contracting State is entitled in connection with each renewal concerning it ("individual State renewal fee") shall not exceed the amount of the renewal fee which that State prescribes for the renewal of a registration in the national register of marks, provided that, if the latter amount relates to a period which is longer or shorter than ten years, the said limit shall be proportionately reduced or proportionately increased, as the case may be.

(4) [*Standard State Fees*] (a) The amounts of the standard State designation fee and of the standard State renewal fee shall be fixed in the Regulations.

(b) The standard State fees shall belong to the States which have chosen standard State fees. The total amount of such fees collected by the International Bureau for any given calendar year shall be distributed and transferred in the course of the following year to the national Offices of the Contracting States to which the standard State fees apply in proportion to the number of designations and renewals concerning each of them, provided that the number resulting for each Office shall be first multiplied by the coefficient, as fixed in the Regulations, based on the extent of the examination which the national law provides.

(5) [*Other Details Concerning Fees*] The Regulations give further details concerning fees and provide for the total or partial reimbursement of certain fees in certain circumstances.

Article 19

Certain National Requirements

(1) [*Fees*] Subject to Article 14(4)(b), no national Office of any designated State shall, unless acting as an independent review authority, require the payment of any fee by the applicant or the owner of the international registration in connection with the obtaining and renewing of the effects, in the said State, of international applications, international registrations, and recordings concerning such applications and registrations.

(2) [*Number of Classes and of Goods and/or Services*] No designated State may refuse or cancel the effects provided for in Article 11 merely on the grounds that its national law allows the registration of marks only in respect of a limited number of classes or a limited number of goods and/or services.

(3)(a) [*Actual Use*] The national law of any Contracting State may impose the same conditions as are applicable to marks whose registration is applied for or which are registered in the national register of marks in that State in respect of any requirement that the owner of an international registration use the mark in that State or in any other place, provided that such State shall not refuse under Article 12, cancel under Article 13, or otherwise fail to accord the effects of the international registration as defined in Article 11, on the ground that the mark has not been used at any time prior to the expiration of three years counted from the international registration date or the recording date of the later designation, as the case may be. However, the national law of any Contracting State may provide that any action for infringement based upon an international registration may be started only after the owner of such international registration has commenced the continuing use of the mark in the said State and that any remedy resulting from such action shall relate only to the period after such use has commenced.

(b) [*Actual Use: Continued*] Where, at the expiration of the three-year time limit referred to in subparagraph (a), the final decision referred to in Article 11(2)(ii) has not been made, the said time limit shall be extended until the expiration of one year counted from the date on which the effect provided for in Article 11(2) does, in fact, come into existence, provided that in no case shall any

Contracting State be required to extend the said three-year time limit by more than two years. This subparagraph shall not apply to any Contracting State whose national law does not permit of such extension. Any such State shall notify the International Bureau of the provisions of its national law in this regard at the time it deposits its instrument of ratification or accession. Each Contracting State shall notify the International Bureau whenever its national law changes in regard to this subparagraph.

(c) [*Actual Use: Continued*] Where prior to the international registration date or the recording date of the later designation, as the case may be, the mark has been registered, in the name of the person who is the owner of the international registration, in the national register of marks of any designated State, or has been the subject on the part of the said person of an application for registration in that register, the proviso of subparagraph (a) and the first sentence of subparagraph (b) shall not apply to the extent that the said registration or application relates to the same goods and/or services as are listed in respect of such State in the international registration. However, where the application for registration in the national register was filed less than three years before the international registration date or the recording date of the later designation, as the case may be, the proviso of subparagraph (a) shall apply, but only during the period between such date and the expiration of the third year counted from the date on which the said application was filed. Where the three-year time limit is extended under subparagraph (b), the preceding sentence shall be applied accordingly. The present subparagraph shall also apply where the earlier registration is one effected in the international register under the Madrid Agreement or the present Treaty.

(d) [*Declaration of Actual Use*] Where one of the conditions of the national law of the designated State referred to in subparagraph (a) consists of a requirement, general in the sense that it is applicable to all marks registered in the national register of marks of that State, that a declaration stating that the mark is or is still in use in that State must be filed with its national Office at certain points in time or in connection with each renewal or other specific event ("routine declaration"), such declaration may, in the form prescribed by the national law of that State or in the form prescribed in the Regulations, be filed with the International Bureau and shall have the same effect as if it had been filed with the national Office of that State on the date on which it was received by the International Bureau. Such declaration shall be promptly forwarded by the International Bureau to the said national Office. The said effect shall not be denied on the ground that the declaration was not accompanied by any required supporting evidence, or that the evidence accompanying it was insufficient, without the said national Office's giving the owner of the international registration an opportunity to adduce or complete before it any required evidence within not less than three months after having notified the said owner or his duly appointed representative that evidence or additional evidence is required. The present subparagraph shall not apply in inter partes and other proceedings in which the requirement is not a general one in the sense indicated above ("ad hoc requirement").

(e) [*Declaration of Actual Use: Continued*] No requirement referred to in subparagraph (d) shall be applicable prior to the expiration of the time limit under the proviso of subparagraph (a), subject, where applicable, to subparagraph (b), or subparagraph (c).

(4) [*Declaration of Intent To Use the Mark*] (a) Any Contracting State may apply its national law requiring that applicants file a declaration with its national Office to the effect that they intend to use the mark, provided that such requirement shall be considered to have been complied with if a declaration in the form specified in the Regulations to the effect that the applicant or the owner of an international registration intends to use the mark in that State is contained in the international application or request for the recording of the later designation, as the case may be.

(b) The International Bureau shall, as provided in the Regulations, notify the national Office of any designated State in respect of which a declaration under subparagraph (a) was filed with that Bureau of such declaration.

(5) [*Provisions Common to Paragraphs (3) and (4)*] Whenever paragraphs (3) and (4) refer to use of the mark by the applicant or the owner of the international registration, use by a person whose use, under the applicable national law, inures to the benefit of the applicant or the owner shall be sufficient for invoking the benefits provided for in the said paragraphs.

(6) [*Collective Marks and Certification Marks*] Any Contracting State may apply its national law requiring that where the mark is a collective mark or a certification mark the owner thereof must adduce before its national Office certain supporting documents and other evidence, including in particular the bylaws of the association or other entity owning such mark and the rules concerning the control exercised over the use of such mark.

(7) [*Representation*] No designated State shall require that the applicant or the owner of the international registration be represented by any natural person or legal entity located in that State or that, for the purpose of serving notices on such applicant or owner, an address in that State be indicated, except where, in respect of or based on the mark which is the subject of the international application or the international registration, the applicant or owner institutes or defends a proceeding before the national authorities of the said State.

(8) [*Service of Certain Notifications*] (a) The national law of any Contracting State may provide that proceedings before a national authority, including a court, in that State may, for the cancellation in that State pursuant to Article 13 of the effect provided for in Article 11(2), and for no other matter, validly be commenced against the owner of the international registration by means of service of a notification addressed to him at the International Bureau.

(b) The International Bureau shall promptly forward the said notification to the owner of the international registration by registered airmail accompanied by a postal receipt form (*avis de reception, Ruckschein*).

(c) Promptly upon return to the International Bureau of the receipt form, that Bureau shall send to the party instituting the proceeding a copy, certified by that Bureau, of the said receipt form.

(d) If the receipt form showing receipt by the said owner is not received by the Internal Bureau within one month from the date of its having mailed the notification, the International Bureau shall promptly publish the notification.

(e) Any national law referred to in subparagraph (a) shall provide for a reasonable time limit for the owner of the international registration to respond to the notification and defend his rights in the proceedings. This time limit shall not be less than three months from the date of the notification.

(9) [*Certain Associations*] Article 4(5) shall be without prejudice to the application of the national law in any designated State. However, no such State shall refuse or cancel the effects provided for in Article 11 on the ground that the applicant or the owner of the international registration is an association of the kind referred to in Article 4(5) if, within two months from the date of an invitation addressed to it by the designated Office, the said association files with that Office a list of the names and addresses of all the natural persons or legal entities who or which comprise it, together with a declaration that its members are engaged in a joint enterprise. The said State may, in such a case, consider the said persons or entities as the owners of the international registration standing in the name of the said association.

(10) [*Certification of Documents Issued by the International Bureau*] Where any document issued by the International Bureau bears the seal of that Bureau and the signature of the Director General or a person acting on

his behalf, no authority of any Contracting State shall require authentication, legalization or any other certification of such document, seal or signature, by any other person or authority.

Article 20

Recordings Effected by National Offices

(1) [*Notification of the International Bureau*] The national Office of any Contracting State which effects any recording in its own register of marks or in any other related register in respect of matters that may be recorded in the International Register of Marks with regard to any mark which is registered in the International Register of Marks and for which that State is a designated State shall, at the time of effecting such recording and as provided in the Regulations, notify the International Bureau of the said recording unless the recording has been effected pursuant to a notification by the International Bureau to that national Office.

(2) [*Annotation and Publication by the International Bureau*] The International Bureau shall, as provided in the Regulations, make the appropriate annotation in the International Register of Marks and publish a notice concerning such annotation.

(3) [*Lack of Annotation and Publication*] (a) Until the said annotation and publication are effected, any recording referred to in pargraph (1) shall not be effective in respect of any third party unless such third party was actually aware of the subject matter of the said recording.

(b) Notwithstanding subparagraph (a), the national law of any Contracting State may provide that recordings in its own register referred to in paragraph (1) shall be effective in respect of the residents of that State even before the annotation and publication referred to in subparagraph (a) are effected.

Article 21

Preservation of Rights Acquired Through National Registration

(1) [*Rights Preserved*] If, at the international registration date or the recording date of the later designation, as the case may be, the owner of the international registration of a mark owns, in any designated State, a registration of the same mark in the national register of marks ("national registration"), his rights under this Treaty shall be deemed to include in respect of that State all rights, particularly any priority right, existing under the national registration, and, subject to paragraph (4), shall be deemed to continue to include them even where the national registration subsequently expires. The foregoing provision shall apply to the extent that the goods and/or services referred to in respect of the said State in the international registration are, in fact, covered by the list of goods and/or services referred to in the said national registration.

(2) [*Procedural Details*] The applicant or the owner of the international registration of a mark may, as provided in the Regulations, make a declaration stating that he owns national registrations of the same mark in certain designated States and identifying such registrations. The declaration may be included in the international application or the request for the recording of later designations or it may be filed separately. It shall, as provided in the regulations, be accompanied by a certified copy of each national registration referred to in the declaration. The International Bureau shall record and publish the declaration and shall notify the interested designated Offices accordingly, as provided in the Regulations. Those Offices shall refer to the declaration in their respective national registers of marks in connection with the said national registrations.

(3) [*Immunity Against Refusal*] (a) Where a declaration under paragraph (2) has been notified to the designated Office and the conditions referred to in paragraph (1) are complied with, and to the extent that they are complied with, the effects provided for in Article 11 may not, subject to subparagraph (b), be refused under Article 12.

(b) Where, in any designated State, there is more than one national register of marks or the national register of marks has several parts and the national registration referred to in paragraph (1) exists in a national register or a part of that register which affords less than the highest degree of protection, subparagraph (a) shall apply only if the declaration under paragraph (2) relates to a registration in the same national register or in the same part of that register.

(4) [*Expiration of the National Registration*] Where the national registration referred to in paragraph (1) expires, the rights under this Treaty shall be deemed to continue to include the rights which existed under the said national registration only where a declaration referred to in paragraph (2) has been filed not later than within one year from the expiration of the said national registration.

Article 22

Preservation of Rights Acquired Through International Registration Under the Madrid Agreement

(1) [*Rights Preserved*] If, at the international registration date or the recording date of the later designation, as the case may be, the owner of the international registration of a mark effected under this Treaty owns, in respect of any designated State, an international registration of the same mark effected under the Madrid Agreement ("Madrid Registration"), his rights under this Treaty shall be deemed to include in respect of that State all rights, particularly any priority right, existing under the Madrid registration and, subject to paragraph (4), shall be deemed to continue to include them even where the Madrid registration subsequently expires. The foregoing provision shall apply to the extent that the goods and/or services referred to in respect of the said State in the international registration under this Treaty are, in fact, covered by the list of goods and/or services referred to in respect of the said State in the Madrid registration.

(2) [*Procedural Details*] The applicant seeking the international registration of a mark under this Treaty, or the owner of the international registration of a mark under this Treaty, may, as provided in the Regulations, make a declaration stating that he owns a Madrid registration of the same mark in respect of certain designated States and identifying such registration. The declaration may be included in the international application or the request for the recording of later designations or it may be filed separately. The International Bureau shall record and publish the declaration, as provided in the Regulations.

(3) [*Immunity Against Refusal*] Where a declaration under paragraph (2) has been notified to the designated Office and the conditions referred to in paragraph (1) are complied with, and to the extent that they are complied with, the effects provided for in Article 11 may not be refused under Article 12, unless protection under the Madrid Agreement has been refused or as long as refusal under that Agreement is still possible.

(4) [*Expiration of the Madrid Registration*] Where the Madrid registration referred to in paragraph (1) expires, the rights under this Treaty shall be deemed to continue to include the rights which existed under the Madrid Agreement only where a declaration referred to in paragraph (2) has been filed not later than within one year from the expiration of the said Madrid registration.

Article 23

Preservation of the Right to Use the Madrid Agreement

Where any natural person or legal entity has the right to seek international registration under the Madrid Agreement or to renew his or its international registra-

tion under that Agreement, such right shall not be affected by this Treaty in any Contracting State party also to the Madrid Agreement.

Article 24

National Registrations Based on International Registrations

(1) [*Preservation of Rights Acquired Through International Registration*] The owner of the international registration of a mark having the effect provided for in Article 11(2) in any Contracting State may, at any time and with reference to such international registration, apply for the registration of the same mark in the national register of marks of that State, and such national registration shall, provided the requirements of the national law are complied with, be granted in that State, and the rights of the said owner under such national registration shall be deemed to include all rights, particularly any priority right, existing under the said international registration in the said State, even where the international registration subsequently expires in respect of that State. The foregoing provision shall apply to the extent that the goods and/or services listed in the said application are in fact covered by the list of goods and/or services referred to in the said international registration in respect of the said State.

(2) [*Procedural Details*] Until the expiration of the effect referred to in paragraph (a), Article 20(1) and (2) shall apply also in connection with any national registration effected under that paragraph.

Article 25

Regional Marks

(1) [*Designation Having the Effect of an Application for a Regional Mark*] (a) Where the residents or nationals of all Contracting States are given the right under a treaty providing for the registration of regional marks ("regional treaty") to file applications and obtain registrations under such regional treaty by way of this Treaty, any Contracting State party to such regional treaty may declare, as provided in the Regulations, that its designation under the Treaty shall have the same effect as if the mark had been applied for a regional mark effective in that State.

(b) Where the international application is for a regional mark and, under the regional treaty, the applicant cannot limit his application to some only of the States party to that treaty, designation of one or more of those States shall be treated as designation of all the States party to that treaty, and withdrawal of the designation, or renunciation of the recording of the designation, or cancellation of the designation for any other reason of any such State shall have the effect of withdrawal, renunciation or cancellation with respect to the designation of all such States.

(2) [*Fees*]Where the use of this Treaty results in effects under a regional treaty. Article 18(2) to (5) shall apply *mutatis mutandis* and subject to the following provisions:

(i) The beneficiary of the fees referred to in Article 18(2) shall be the intergovernmental authority administering the regional treaty.

(ii) The choice referred to in Article 18(2) shall be exercised by the intergovernmental authority administering the regional treaty.

(iii) Where, under a regional treaty, fees vary according to the number of the States to which the effect of the regional registration extends, the amounts of individual fees may vary not only according to Article 18(3)(c) but also according to the number of the designated States party to the said regional treaty, provided that the total amount referred to in Article 18(3)(e) and the amount of the renewal fee referred to in Article 18 (3)(f) shall be that of the fees prescribed in the regional treaty with respect to as many States as are designated States.

Article 26

Representation Before the International Bureau

(1) [*Possibility of Representation*] Applicants and owners of international registrations may, as provided in the Regulations, be represented before the International Bureau by any natural person or legal entity empowered by them to that effect (hereinafter referred to as "the duly appointed representative").

(2) [*Effect of Appointment*] Any invitation, notification or other communication addressed by the International Bureau to the duly appointed representative shall have the same effect as if it had been addressed to the applicant or the owner of the international registration. Any application, request, demand, declaration or other document whose signature by the applicant or the owner of the international registration is required in proceedings before the International Bureau, except the document appointing the representative or revoking his appointment, may be signed by his duly appointed representative, and any communication from the duly appointed representative to the International Bureau shall have the same effect as if it had been effected by the applicant or the owner of the international registration.

(3) [*Several Applicants or Owners*] (a) Where there are several applicants, they shall appoint a common representative. In the absence of such appointment, the applicant first named in the international application shall be considered the duly appointed representative of all the applicants.

(b) Where there are several owners of the international registration, they shall appoint a common representative. In the absence of such appointment, the natural person or legal entity first named among the said owners in the International Register of Marks shall be considered the duly appointed representative of all the owners of the international registration.

(c) Subparagraph (b) shall not apply to the extent that the owners own the international registration in respect of different designated States, or in respect of different goods and/or services, or in respect of different States and different goods and/or services.

Article 27

Conditions for and Effect of Priority Claim Contained in the International Application or in the Request for the Recording of Later Designations

The conditions for and the effect of any priority claimed in the international application or in the request for the recording of later designations shall be as provided for in respect of marks in Article 4 of the Stockholm (1967) Act of the Paris Convention for the Protection of Industrial Property.

Article 28

International Application as Possible Basis of Priority Claim

(1) [*Basis of Claim*] Any international application which is regular shall be equivalent to a regular national filing within the meaning of Article 4 of the Stockholm (1967) Act of the Paris Convention for the Protection of Industrial Property and shall be recognized as the basis of a priority claim as provided for in that Act.

(2) [*Criterion of "Regular" International Application*]. For the purposes of paragraph (1), an international application shall be regarded as regular if it is adequate to establish the date on which it was filed with the International Bureau or, where it was filed through the intermediary of a national office, with that Office.

Article 29

Delay in Meeting Time Limits

(1) [*Delays That Must Be Excused by Contracting States*] Subject to paragraph (3), any Contracting State shall, as far as that State is concerned, excuse, for reasons admitted under its national law, any delay in meeting any time limit fixed in this Treaty or the Regulations.

(2) [*Delays That May Be Excused by Contracting States*] Subject to paragraph (3), any Contracting State may, as far as that State is concerned, excuse, for reasons other than those admitted under its national law, any delay in meeting any time limit fixed in this Treaty or the Regulations.

(3) [*Delays That Cannot Be Excused*] Paragraphs (1) and (2) shall not apply to any delay in meeting any time limit provided for in Article 7(1), Article 7(6)(iii), Article 8(1) and Article 12(2)(a)(i).

(4) [*International Bureau*] The International Bureau shall not excuse delays by applicants, owners of international registrations or national Offices in meeting any time limit fixed in this Treaty and the Regulations.

Article 30

Correction of Errors of the International Bureau

(1) [*Petition for Redress*] Subject to Article 9, where, in the opinion of the applicant or the owner of the international registration, the International Bureau has, in applying the provisions of this Treaty and the Regulations, made an error which may affect the interests of such applicant or owner in respect of any designated State, the said applicant or owner may, within the time limit fixed in the Regulations, filed with the national Office of such State a petition for the purpose of requesting the International Bureau to correct the error in respect of said State.

(2) [*Redress*] If the national Office or any other competent authority of the said State finds that the International Bureau has in fact made the error which is the subject of the petition, the said national Office shall request the International Bureau to correct that error in respect of that State and the International Bureau shall proceed as requested.

(3) [*Procedure*] The applicant or the owner of the international registration who files a petition under paragraph (1) shall, at the time of filing the petition, transmit a copy of that petition to the International Bureau. If the petition relates to a mark which is already registered in the International Register of Marks, the International Bureau shall, as provided in the Regulations, record and publish the fact that it received a copy of such petition; otherwise it shall keep the said copy in its files.

(4) [*Procedure: Continued*] Where the correction requires a corresponding modification of the International Register of Marks, the International Bureau shall modify that Register accordingly. Furthermore, where the correction affects any information which has been the subject of a publication by the International Bureau, that Bureau shall publish the correction.

Article 31

Notification of Owner of International Registration

Any matter recorded by the International Bureau in respect of an international registration shall be the subject of a corresponding notification to the owner of the international registration. Details may be provided in the Regulations.

CHAPTER II: ADMINISTRATIVE PROVISIONS

Article 32

Assembly

(1) [*Composition*] (a) The Assembly shall consist of the Contracting States.

(b) The Government of each Contracting State shall be represented by one delegate, who may be assisted by alternate delegates, advisors, and experts.

(2) [*Tasks*] (a) The Assembly shall:

(i) deal with all matters concerning the maintenance and development of the Union and the implementation of this Treaty;

(ii) excercise such rights and perform such tasks as are specially conferred upon it or assigned to it under this Treaty;

(iii) give directions to the Director General concerning the preparation for revision conferences;

(iv) review and approve the reports and activities of the Director General concerning the Union, and give him all necessary instructions concerning matters within the competence of the Union;

(v) determine the program and adopt the budget of the Union, and approve its final accounts;

(vi) adopt the financial regulations of the Union;

(vii) establish such committees and working groups as it deems appropriate to facilitate the work of the Union and of its organs;

(viii) determine which States other than Contracting States and which intergovernmental and international non-governmental organizations shall be admitted to its meetings as observers;

(ix) decide upon the establishment of any agency of the International Bureau in any place outside Geneva (Switzerland) for the purpose of receiving documents and payments under this Treaty and the Regulations with the same effect as if they had been received by the International Bureau in Geneva;

(x) take any other appropriate action designed to further the objectives of the Union and perform such other functions as are appropriate under this Treaty.

(b) With respect to matters which are of interest also to other Unions administered by the Organization, the Assembly shall make its decisions after having heard the advice of the Coordination Committee of the Organization.

(3) [*Representation*] A delegate may represent, and vote in the name of, one State only.

(4) [*Vote*] Each Contracting State shall have one vote.

(5) [*Quorum*] (a) One-half of the Contracting States shall constitute a quorum.

(b) In the absence of the quorum, the Assembly may make decisions but, with the exception of decisions concerning its own procedure, all such decisions shall take effect only if the quorum and the required majority are attained through voting by correspondence as provided in the Regulations.

(6) [*Majority*] (a) Subject to Article 34(5)(f), Article 35(2)(b) and (c), and Article 38(2)(b), the decisions of the Assembly shall require a majority of the votes cast.

(b) Abstentions shall not be considered as votes.

(7) [*Sessions*] (a) The Assembly shall meet once in every calendar year in ordinary session upon convocation by the Director General, preferably during the same period and at the same place as the Coordination Committee of the Organization.

(b) The Assembly shall meet in extraordinary session upon convocation by the Director General, either on the Director General's own initiative or at the request of one-fourth of the Contracting States.

(8) [*Rules of Procedure*] The Assembly shall adopt its own rules of procedure.

Article 33

International Bureau

(1) [*Tasks*] The International Bureau shall:

(i) Perform the administrative tasks concerning the Union; in particular, it shall perform such tasks as are specially assigned to it under this Treaty or by the Assembly;
(ii) provide the secretariat of revision conferences, of the Assembly, of the committees and working groups established by the Assembly, and of any other meeting convened by the Director General and dealing with matters of concern to the Union.

(2) [*Director General*] The Director General shall be the chief executive of the Union and shall represent the Union.

(3) [*Meetings Other Than Sessions of the Assembly*] The Director General shall convene any committee and working group established by the Assembly and all other meetings dealing with matters of concern to the Union.

(4) [*Role of International Bureau in the Assembly and Other Meetings*] (a) The Director General and any staff member designated by him shall participate, without the right to vote, in all meetings of the Assembly, the committees and working groups established by the Assembly, and any other meeting convened by the Director General and dealing with matters of concern to the Union.

(b) The Director General or a staff member designated by him shall be ex officio secretary of the Assembly, and of the committees, working groups and other meetings referred to in subparagraph (a).

(5) [*Revision Conferences*] (a) The Director General shall, in accordance with the directions of the Assembly, make the preparations for revision conferences.

(b) The Director General may consult with intergovernmental and international non-governmental organizations concerning the said preparations.

(c) The Director General and persons designated by him shall take part, without the right to vote, in the discussions at revision conferences.

(d) The Director General or a staff member designated by him shall be ex officio secretary of any revision conference.

(6) [*Assistance by National Offices*] The Regulations may specify the services that national Offices shall render in order to assist the International Bureau in carrying out its tasks under this Treaty.

Article 34
Finances

(1) [*Budget*] (a) The Union shall have a budget.

(b) The budget of the Union shall include the income and expenses proper to the Union, its contribution to the budget of expenses common to the Unions, and any sum made available to the budget of the Conference of the Organization.

(c) Expenses not attributable exclusively to the Union but also to one or more other Unions administered by the Organization shall be considered as expenses common to the Unions. The share of the Union in such common expenses shall be in proportion to the interest the Union has in them.

(2) [*Coordination with Other Budgets*] The budget of the Union shall be established with due regard to the requirements of coordination with the budgets of the other Unions administered by the Organization.

(3) [*Sources of Income*] The budget of the Union shall be financed from the following sources:
(i) fees and other charges due for services rendered by the International Bureau in relation to the Union;
(ii) sale of, or royalties on, the publications of the International Bureau concerning the Union;
(iii) gifts, bequests, and subventions;
(iv) rents, interests, and other miscellaneous income.

(4)(a) [*Self-Supporting Financing*] The amounts of fees and charges due to the International Bureau and the prices of its publications shall be so fixed that they should, under normal circumstances, be sufficient to cover the expenses of the International Bureau connected with the administration of this Treaty.

(b) [Continuation of Budget; Reserve Fund] If the budget is not adopted before the beginning of a new financial period, it shall be at the same level as the budget of the previous year, as provided in the financial regulations. If the income exceeds the expenses, the difference shall be credited to a reserve fund.

(5) [*Working Capital Fund*] (a) The Union shall have a working capital fund which shall be constituted by a single payment made by each Contracting State. If the fund becomes insufficient, the Assembly shall arrange to increase it. If part of the fund is no longer needed, it shall be reimbursed.

(b) The amount of the initial payment of each Contracting State to the said fund or of its participation shall be proportionate to the number of international applications which, among the total number of such applications, it is estimated that its residents will file. The participations of all Contracting States in the fund may be revised from time to time by the Assembly to make them correspond to the number of international applications actually filed by the residents of the various States since the date of the initial payments or the last such revision.

(c) The proportion and the terms of payment shall be fixed by the Assembly on the proposal of the Director General and after it has heard the advice of the Coordination Committee of the Organization.

(d) If loans from the reserve fund permit the constitution of a working capital fund that is sufficient, the Assembly may suspend the application of subparagraphs (a), (b) and (c).

(e) Any reimbursement under subparagraph (a) shall be proportionate to the amounts paid by each Contracting State, taking into account the dates at which they were paid.

(f) Any decision under subparagraphs (a) to (d) shall require two-thirds of the votes cast.

(c) [*Advances by Host Country*] (a) In the headquarters agreement concluded with the State on the territory of which the Organization has its headquarters, it shall be provied that, whenever the working capital fund is insufficient, such State shall grant advances. The amount of those advances and the conditions on which they are granted shall be the subject of separate agreements, in each case, between such State and the Organization. As long as it remains under the obligation to grant advances, such State shall have an ex officio seat in the Assembly if it is not a Contracting State.

(b) The State referred to in subparagraph (a) and the Organization shall each have the right to denounce the obligation to grant advances, by written notification. Denunciation shall take effect three years after the end of the year in which it has been notified.

(7) [*Auditing of Accounts*] The auditing of the accounts shall be effected by one or more of the contracting States or by external auditors, as provided in the financial regulations. They shall be designated, with their agreement, by the Assembly.

Article 35
Regulations

(1) [*Adoption of Regulations*] The Regulations adopted at the same time as this Treaty are annexed to this Treaty.

(2) [*Amending the Regulations*] The Assembly may amend the Regulations. Amendments may consist also of new provisions added to the Regulations concerning:
(i) matters in respect of which this Treaty expressly refers to the Regulations or expressly provides that they are or shall be prescribed,
(ii) any administrative requirements, matters or procedures,
(iii) any details useful in the implementation of this Treaty.

(b) Subject to subparagraphs (c) and (d), the amend-

ment of the Regulations shall require two-thirds of the votes cast.

(c) The amendment of any provision of the Regulations affecting the amount of the fees referred to in Article 18(2), as well as the distribution among the national Offices and the transfer to them of such fees, shall require three-fourths of the votes cast. Where the amendment relates to fees referred to in Article 18(2) but those fees are fees to which only some of the Contracting States are entitled, only the Contracting States entitled thereto shall, for the purposes of the quorum, be considered Contracting States, and only they shall have the right to vote.

(d) The amendment of any provisions of the Regulations concerning declarations of intent to use the mark and declarations of actual use of the mark shall require that it be accepted by a majority of two-thirds of the votes cast and that no Contracting State whose national law allows or requires the filing of such declarations vote against the proposed amendment.

(3) [*Conflict Between the Treaty and the Regulations*] In the case of conflict between the provisions of this Treaty and those of the Regulations, the former shall prevail.

Article 36

Search Service

(1) [*Tasks*] The International Bureau shall maintain a Service whose task shall be to search for anticipations among marks registered under this Treaty, and, to the extent authorized by the Assembly, other marks as well.

(2) [*Fees; Availability*] Searches shall be made on request and shall be subject to the payment of fees fixed under the Regulations. The Service shall be at the disposal of any Government, national Office, other legal entity, or natural person.

(3) [*Self-Supporting Financing*] The amounts of the fees referred to in paragraph (2) shall be so fixed that they should be sufficient to cover the expenses of the International Bureau connected with the Service.

CHAPTER III: REVISION AND AMENDMENT

Article 37

Revision of the Treaty

(1) [*Revision Conferences*] This Treaty may be revised from time to time by conferences of the Contracting States.

(2) [*Convocation*] The convocation of any revision conference shall be decided by the Assembly.

(3) [*Provisions That Can Be Amended Also by the Assembly*] The provisions referred to in Article 38(1)(a) may be amended either by a revision conference or according to Article 38.

Article 38

Amendment of Certain Provisions of the Treaty

(1) [*Proposals*] (a) Proposals for the amendment of the length of any time limit fixed in Chapter I of this Treaty, other than those referred to in Articles 12(2) and 19(3), or for any amendment to Articles 32(5) and (7), 33, 34 and 36, may be initiated by any Contracting State or by the Director General.

(b) Such proposals shall be communicated by the Director General to the Contracting States at least six months in advance of their consideration by the Assembly.

(2) [*Adoption*] (a) Amendments to the provisions referred to in paragraph (1) shall be adopted by the Assembly.

(b) Adoption shall require three-fourths of the votes cast, provided that adoption of any amendment of the length of the time limit fixed in Articles 7(1), 7(3)(c), 7(6)(iii) and 8(1) shall require that no Contracting State vote against the proposed amendment.

(3) [*Entry Into Force*] Any amendment to the provisions referred to in paragraph (1) shall enter into force one month after written notifications of acceptance, effected in accordance with their respective constitutional processes, have been received by the Director General from three-fourths of the Contracting States members of the Assembly at the time the Assembly adopted the amendment.

(b) Any amendment to the said Articles thus accepted shall bind all the Contracting States which were Contracting States at the time the amendment was adopted by the Assembly, provided that any amendment increasing the financial obligations of the said Contracting States shall bind only those which have notified their acceptance of such amendment.

(c) Any amendment which has been accepted and which has entered into force in accordance with subparagraph (a) shall bind all States which become Contracting States after the date on which the amendment was adopted by the Assembly.

CHAPTER IV: FINAL PROVISIONS

Article 39

Becoming Party to the Treaty

(1) [*Ratification, Accession*] Any State member of the International Union for the Protection of Industrial Property may become party to this Treaty by:

(i) signature followed by the deposit of an instrument of ratification, or
(ii) deposit of an instrument of accession.

(2) [*Deposit of Instrument*] Instruments of ratification or accession shall be deposited with the Director General.

(3) [*Reference to Other States*] (a) Any instrument of ratification or accession may be accompanied by a declaration to the effect that it shall be considered to have been deposited only when another State, or either one of two other States, or both of two other States, specified by name, shall have deposited instruments of ratification or accession. The instrument of ratification or accession of any State having made such a declaration shall be considered to have been deposited

(i) on the day on which the specified State, or one of the two specified States, or the second specified State, as the case may be, deposits its instrument of ratification or accession,
(ii) where the instrument of ratification or accession of any specified State itself is accompanied by a declaration concerning other States, on the day on which the instrument of ratification or accession of the said specified State is to be considered to have been deposited.

(b) Any declaration made under subparagraph (a) may be withdrawn at any time or, if it was made in respect of two States, may be limited to one of them. The instrument of ratification or accession of any State withdrawing its declaration shall be considered to have been deposited on the day on which the withdrawal is notified to the Director General, whereas the instrument of ratification or accession of any State limiting its declaration shall be considered to have been deposited on the day on which the remaining State deposits its instrument of ratification of accession. If the instrument of ratification or accession of the remaining State has already been deposited, the instrument of ratification or accession of the State limiting its declaration shall be considered to have been deposited on the day on which the limitation is notified to the Director General.

(4) [*Certain Territories*] (a) The provisions of Article 24 of the Stockholm (1967) Act of the Paris Convention for the Protection of Industrial Property shall apply to this Treaty.

(b) Subparagraph (a) shall in no way be understood as implying the recognition or tacit acceptance by a Contracting State of the factual situation concerning a territory to which this Treaty is made applicable by another Contracting State by virtue of the said subparagraph.

Article 40

Transitional Provisions

(1) [*Declaration by Certain Developing Countries*] Any State party to the Paris Convention for the Protection of Industrial Property but not party to this Treaty which, in conformity with the established practice of the General Assembly of the United Nations, is regarded as a developing country may make a declaration addressed to the Director General stating that it wishes to avail itself of the right provided for in paragraph (2) and that it intends to become party to this Treaty at the latest within two years from the date on which that right, according to the applicable provisions of paragraphs (5) to (8), ceases to be effective in respect of that State.

(2) [*Effect of Declaration*] Residents and nationals of any State having made a declaration according to paragraph (1) shall, notwithstanding Article 4(1), have the right to file international applications and to own international registrations under this Treaty.

(3) [*Time of Filing Declaration*] The declaration referred to in paragraph (1) shall be filed with the Director General at any time before June 12, 1978.

(4) [*Commencement of Effect*] If filed before the entry into force of this Treaty according to Article 41(1), the declaration referred to in paragraph (3) shall become effective on the date of the said entry into force. If filed after such entry into force, the said declaration shall become effective three months after the date of its filing.

(5) [*Expiration of Effect*] Subject to paragraphs (6) to (8), the right provided for in paragraph (2) shall be effective until the expiration of whichever of the following two periods expires later:

(i) a period of ten years from the date (June 12, 1973) of the signature of this Treaty,

(ii) a period of five years from the entry into force of this Treaty according to Article 41(1).

(6) [*Possible Prolongation of Effect*] (a) The period referred to in paragraph (5) may be prolonged twice for periods of five years each by decisions of the Special Conference as defined in subparagraph (b) in respect of those States having made the declaration referred to in paragraph (1) whose residents or nationals have filed an average of not more than two hundred international applications per year during the three consecutive years, as defined in subparagraph (d).

(b) The Special Conference shall consist of the States which, at the time it meets, are Contracting States and those States having made a declaration under paragraph (1) which fulfill, in respect of the number of international applications, the conditions set forth in subparagraph (a).

(c) The decision of the Special Conference shall require a simple majority of the votes cast. The said Conference shall meet upon convocation by the Director General during the year preceding the year in which:

(i) the period referred to in paragraph (5) expires, and

(ii) the first five-year period referred to in subparagraph (a) expires if prolongation for that period had been decided.

(d) The three consecutive years referred to in subparagraph (a) shall, in respect of each of the two possible decisions, be the fourth, third and second calendar years before the year in which the decision is made.

(7) [*Possible Further Prolongation of Effect*] The Assembly, in exceptional cases and upon request, may decide to prolong for two further periods of five years each the application of the right under paragraph (2) in respect of any State which, at the time the decision is made, benefits from the said right and which is then regarded as one of the least developed among the developing countries.

(8) [*Termination of Effect for Special Reasons*] Notwithstanding paragraphs (4) to (7), the right provided for in paragraph (2) shall cease to exist on the last day of the calender year which follows the year in which any State having made a declaration under paragraph (1):

(i) ceases to be regarded as a developing country in conformity with the established practice of the General Assembly of the United Nations, or

(ii) denounces the Paris Convention for the Protection of Industrial Property.

Article 41

Entry Into Force of the Treaty

(1) [Initial Entry Into Force] This Treaty shall enter into force six months after five States have deposited their instruments of ratification or accession.

(2) [*States Not Covered by the Initial Entry Into Force*] Any State which is not among those referred to in paragraph (1) shall become bound by this Treaty three months after the date on which it has deposited its instrument of ratification or accesssion.

Article 42

Reservations to the Treaty

Subject to Article 46(2), no reservations to this Treaty are permitted.

Article 43

Denunciation of the Treaty

(1) [*Notification*] Any contracting State may denounce this Treaty by notification addressed to the Director General.

(2) [*Effective Date*] Denunciation shall take effect one year after the day on which the Director General has received the notification.

(3) [*Moratorium on Denunciation*] The right of denouncing this Treaty provided for in paragraph (1) shall not be exercised by any Contracting State before the expiration of five years from the date on which it becomes bound by this Treaty.

(4) [*Continuation of the Effects of the Treaty*] (a) The effects of this Treaty on any mark enjoying the benefits of this Treaty on the day preceding the day on which the denunciation by any Contracting State takes effect shall continue in that State until the expiration of the initial or renewal term which was running on that date.

(b) Where the right to own the international registration of a mark is based on the owner's being a resident or national of the Contracting State referred to in subparagraph (a), the benefits of this Treaty shall, in all designated States, continue until the day on which the period referred to in subparagraph (a) expires in respect of that mark.

Article 44

Signature and Languages of the Treaty

(1) [*Original Texts*] This Treaty shall be signed in a single original in the English and French languages, both texts being equally authentic.

(2) [*Official Texts*] Official texts shall be established by the Director General, after consultation with the interested Governments, in the German, Italian, Japanese, Portuguese, Russian and Spanish languages, and such other languages as the Assembly may designate.

(3) [*Time Limit for Signature*] This Treaty shall remain open for signature at Vienna until December 31, 1973.

Article 45

Depositary Functions

(1) [*Deposit of the Original Texts*] The original of this Treaty, when no longer open for signature, shall be deposited with the Director General.

(2) [*Certified Copies*] The Director General shall transmit two copies, certified by him, of this Treaty to the

Governments of the States party to the Paris Convention for the Protection of Industrial Property and, on request, to the Government of any other State.

(3) [*Registration of the Treaty*] The Director General shall register this Treaty with the Secretariat of the United Nations.

(4) [*Amendments*] The Director General shall transmit two copies, certified by him, of any amendment to this Treaty to the Governments of the Contracting States and, on request, to the Government of any other State.

Article 46

Settlement of Disputes

(1) [*International Court of Justice*] Any dispute between two or more Contracting States concerning the interpretation or application of this Treaty or the Regulations, not settled by negotiation, may, by any one of the States concerned, be brought before the International Court of Justice by application in conformity with the Statute of the Court, unless the States concerned agree on some other method of settlement. The Contracting State bringing the dispute before the Court shall inform the International Bureau; the International Bureau shall bring the matter to the attention of the other Contracting States.

(2) [*Reservation*] Each Contracting State may, at the time it signs this Treaty or deposits its instrument of ratification or accession, declare by notification deposited with the Director General that it does not consider itself bound by paragraph (1). With regard to any dispute between any Contracting State having made such a declaration and any other Contracting State, paragraph (1) shall not apply.

(3) [*Withdrawal of Reservation*] Any Contracting State having made a declaration in accordance with paragraph (2) may, at any time, withdraw its declaration by notification addressed to the Director General.

Article 47

Notifications

The Director General shall notify the Governments of the States party to the Paris Convention for the Protection of Industrial Property of:

(i) signatures under Article 44;

(ii) deposits of instruments of ratification or accession under Article 39(2) and of any declaration accompanying them under Article 39(3)(a) and any withdrawal or limitation of such declarations made under Article 39(3)(b);

(iii) the date of entry into force of this Treaty under Article 41(1) and any amendment under Article 38(3)(a);

(iv) denunciations received under Article 43;

(v) declarations received under Articles 40(1) and 46(2) and (3).

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Rule 1

Abbreviated Expressions

1.1 *"Treaty"*

In these Regulations, the word "Treaty" means the Trademark Registration Treaty.

1.2 *"Chapter" and "Article"*

In these Regulations, the words "Chapter" and "Article" refer to the specified Chapter or Article of the Treaty.

1.3 *"Associations"*

In these Regulations, references to legal entities where such references concern them in their capacity of applicants or owners of international registrations shall be construed as references also to associations referred to in Article 4(5).

1.4 *"Gazette"*

In these Regulations, the word "Gazette" means the official Gazette of the International Bureau referred to in Article 2(ix).

1.5 *"Table of Fees"*

In these Regulations, the words "Table of Fees" mean the table of fees annexed hereto.

RULES CONCERNING CHAPTER I

Rule 2

Representation Before The International Bureau

2.1 *Number of Duly Appointed Representatives*

(a) The applicant and the owner of the international registration may appoint only one representative.

(b) Where several natural persons or legal entities have been indicated as representatives by the applicant or the owner of the international registration, the natural person or legal entity first mentioned in the document in which they are indicated shall be regarded as the only duly appointed representative.

(c) Where the representative is a partnership or firm composed of attorneys or patent or trademark agents, it shall be regarded as one representative.

2.2 *Form of Appointment*

(a) A representative shall be regarded as a "duly appointed representative" if his appointment complies with the prescriptions of paragraphs (b) to (e).

(b) The appointment of any representative shall require:

(i) that his name appear as that of a representative in the international application and that such application bear the signature of the applicant, or

(ii) that a separate power of attorney (i.e., a document appointing the representative), signed by the applicant or the owner of the international registration, be filed with the International Bureau.

(c) Where there are several applicants or owners of the international registration, the document containing or constituting the appointment of their common representative shall be signed by all of them.

(d) Any document containing or constituting the appointment of a representative shall indicate his name and his address. Where the representative is a natural person, his name shall be indicated by his family name and given name(s), the family name being indicated before the given name(s). Where the representative is a legal entity or a partnership or firm of attorneys or patent or trademark agents, "name" shall mean the complete name of the legal entity or partnership or firm. The address of the representative shall be indicated in the same manner as that provided for in respect of the applicant in Rule 5.2(c).

(e) The document containing or constituting the appointment shall contain no words which, contrary to Article 26(2), would limit the powers of the representative, in particular by indicating a time limit or event after which the appointment would expire, by excluding certain matters from the powers of the representative, or by specifying some only of the powers which any representative has under the said Article.

(f) Where the appointment does not comply with the requirements referred to in paragraphs (b) to (e), it shall be treated by the International Bureau as if it had not been made, and the applicant or the owner of the international registration as well as the natural person, the legal entity, the partnership or firm which was indicated as the representative in the purported appointment shall be informed of this fact by the International Bureau.

(g) The Administrative Instructions shall provide recommended wording for the appointment.

2.3 *Revocation or Renunciation of Appointment*

(a) The appointment of any representative may be revoked at any time by the natural person who or legal entity which has appointed that representative. The revocation shall be effective even if only one of the natural persons who or legal entities which have appointed the representative revokes the appointment.

(b) Revocation shall require a written document signed by the natural person or the legal entity referred to in the preceding paragraph. It shall be effective, as far as the International Bureau is concerned, as from the date of the receipt of the said document by that Bureau.

(c) The appointment of a representative as provided in Rule 2.2 shall be regarded as the revocation of any earlier appointment of any other representative. The appointment shall preferably indicate the name of the other earlier appointed representative.

(d) Any representative may renounce his appointment through a notification signed by him and addressed to the International Bureau.

2.4 *General Powers of Attorney*

The appointment of a representative in a separate power of attorney (i.e., a document appointing the representative) may be general in the sense that it relates to more than one international application and more than one international registration in respect of the same natural person or legal entity. The identification of such applications and registrations, as well as other details in respect of such general power of attorney and of its revocation or renunciation, shall be provided in the Administrative Instructions. The Administrative Instructions may provide for a fee payable in connection with the filing of general powers of attorney.

2.5 *Substitute Representative*

(a) The appointment of the presentative referred to in Rule 2.2(b) may indicate also one or more natural persons as substitute representatives.

(b) For the purposes of the second sentence of Article 26(2), substitute representatives shall be considered as representatives.

(c) The appointment of any substitute representative may be revoked at any time by the natural person who or legal entity which has appointed the representative or by the representative. Revocation shall require a written document signed by the said natural person, legal entity or representative. It shall be effective, as far as the International Bureau is concerned, as from the date of the receipt of the said document by that Bureau.

Rule 3

3.1 *International Register of Marks*
Contents of the International Register

The International Register of Marks shall contain, in espect of each mark registered therein:

(i) all the indications that must or may be furnished under the Treaty or these Regulations, and that have in fact been furnished, to the International Bureau, and, where relevant, the date on which such indications were received by that Bureau,
(ii) the amount of all fees received and the date or dates on which they were received by the International Bureau,
(iii) the number and date of the international registration and the numbers, if any, and the dates of all recordings relating to that registration.

3.2 *Keeping of the International Register*

The administrative Instructions shall regulate the establishment of the International Register of Marks, and, subject to the Treaty and these Regulations, shall specify the form in which it shall be kept and the procedure which the International Bureau shall follow for inscribing recordings therein and for preserving it from loss or other damage.

Rule 4

4.1 *Applicant*
The Same Applicant for All Designated States

(a) The applicant shall be the same for the purposes of all the designated States.
(b) Where the international application, as filed, does not indicate the same applicant for the purposes of all the designated States, that application shall be treated as if only the state first mentioned therein, and any other State for the purposes of which the same applicant is indicated as for the said first-mentioned state, had been designated.

Rule 5

Mandatory Contents of the International Application

5.1 *Indication that the International Application is Filed Under the Treaty*

The indication referred to in Article 5(1)(a)(i) shall be worded as follows: "The undersigned requests that the mark herein reproduced be registered in the International Register of Marks established under the Trademark Registration Treaty"; or it shall consist of a statement to the same effect.

5.2 *Indications Concerning the Applicant*

(a) The applicant's identity shall be indicated by his name. If the applicant is a natural person, his name shall be indicated by his family name and given name(s), the family name being indicated before the given name(s). If the applicant is a legal entity, its name shall be indicated by the full, official designation of the said entity.
(b) The applicant's residence and nationality shall be indicated by the name(s) of the State(s) of which he is a resident and of which he is a national.
(c) The applicant's address shall be indicated in such a way as to satisfy the customary requirements for prompt postal delivery at the indicated address and shall, in any case, consist of all the relevant administrative units up to, and including, the house number, if any. Where the national law of the designated State does not require the indication of the house number, failure to indicate such number shall have no effect in that State. Any telegraphic and teletype address and telephone number that the applicant may have should preferably be indicated. For each applicant, only one address shall be indicated; if several addresses are indicated, only the one first mentioned in the international application shall be considered.

5.3 *Reproduction of the Mark; Color; Transliteration*

(a) Where the mark consists only of letters of the Latin alphabet, Arabic or Roman numerals, and punctuation signs usual in connection with the Latin alphabet, and the applicant does not wish to claim any special graphic feature, the mark may be reproduced, for example by typing the letters, numerals and signs, on the sheet itself on which the international application appears. The use of small letters and capital letters shall be permitted, and shall be followed in the publications of the International Bureau.
(b) In cases other than that referred to above, the mark shall be reproduced on a sheet of paper of A4 size (29.7 cm x 21 cm.), separate from the sheet on which the text of the international application appears, and shall be attached to the latter sheet. The reproduction of the mark itself on the separate sheet shall not occupy a space larger than 10 centimeters horizontally and 10 centimeters vertically. The reproduction of the mark on the separate sheet shall be of a quality admitting of direct reproduction by photography and printing processes. The separate sheet shall indicate the name and address of the applicant.
(c) Where color is claimed, the international application shall contain a statement to that effect and shall be accompanied by
(i) either a reproduction of the mark in color in one copy satisfying the requirements set forth in paragraph (b),
(ii) or a reproduction of the mark in color in the number of copies fixed in the Administrative Instructions and a reproduction of the mark in black and white in one copy containing a description of the colors in words and signs as specified in the Adminstrative Instructions, all copies satisfying the requirements set forth in paragraph (b).

(d) Where the mark or a certain part of it is three-dimensional, the international application and the separate sheet containing the reproduction of the three-dimensional feature shall contain an indication to that effect.
(e) Where the mark is intended to be used, or also to be used, as a sound mark, the international application and any separate sheet containing the reproduction of the mark shall contain an indication to that effect.
(f) Where the mark consists of or contains matter in script other than Latin script or numbers expressed in forms other than Arabic or Roman, the international application shall also contain a transliteration of such matter in Latin script and Arabic numerals; the transliteration shall follow the English pronunciation if the international application is in English, and the French pronunciation if it is in French. If the International Bureau finds that such transliteration is incorrect or is missing and it is equipped to effect itself the said transliteration, it shall do so. In the latter case, however, it shall notify the applicant of its transliteration and invite him to make comments on it within one month from the date of the notification, and shall not proceed with the international registration before the expiration of the said period of one month.

5.4 *List of Goods and/or Services*

(a) Each of the groups of terms pertaining to the same class of the International Classification shall be preceded by an indication of the number of the class, and the various groups shall follow in the numerical order of the corresponding classes.
(b) If, in the list of goods and/or services contained in the international application as filed, the terms are not or not properly grouped as provided in Article 5(1)(a)(iv), the International Bureau shall, after having notified the applicant of its intention to do so and allowing him one month from the date of the notification to react to such notification, classify each term as required and constitute the required groups. If any of the terms does not permit classification in one class only of the International Classification, it shall be classified in each of the applicable classes.
(c) If the International Bureau finds that any term is incomprehensible, it shall notify the applicant of its finding and allow him one month from the date of the notification to submit either arguments to the effect that the term is comprehensible or a request that the incompre-

hensible term be deleted. If, on the basis of the said arguments or other considerations, the International Bureau finds that the term is comprehensible, it shall treat it according to its comprehended meaning. Otherwise it shall delete it ex officio.

(d) The list of goods and/or services shall be the same for the purposes of all States designated in the international application as filed or as limited under Article 7(4)(b). Where the international application as filed or as limited under Article 7(4)(b) indicates different goods and/or services in respect of different designated States, that application shall be treated as if only the State first mentioned therein, and any other States for the purposes of which the same list of goods and/or services is indicated as for the said first-mentioned State, had been designated.

5.5 *Identification of States*

(a) Identification of any State shall consist in writing its name in the international application in a manner sufficiently clear for the purposes of identification.

(b) The identification of any designated State which is not a Contracting State shall be treated as if such State had not been identified.

5.6 *Choice Between National and Regional Marks*

(a) The availability of any choice referred to in Article 5(1)(a)(vi) shall be notified by the interested Contracting State to the International Bureau, and that Bureau shall publish a corresponding announcement.

(b) The choice referred to in Article 5(1)(a)(vi) shall be indicated by the words "national mark desired" or "regional mark desired," respectively, or by other words to that effect, appearing next to the name of the designated State to which the choice applies.

5.7 *Collective Marks and Certification Marks*

The indication referred to in Article 5(1)(a)(vii) shall consist of the words "collective mark desired" or "certification mark desired," respectively, or other words to that effect, appearing next to the name of the designated State to which the indication applies.

5.8 *Application Filed Through the Intermediary of a National Office*

(a) The indication referred to in Article 5(3)(b) shall be worded as follows: "The . . . [1] certifies that the present international application was filed with it on . . . [2]."

[1] Indicate the name of the national Office. [2] Indicate the date.

(b) The national Office of any Contracting State whose national law provides that international applications of residents of that State may be filed through the intermediary of the national Office of the said State shall, at least once a week, send to the International Bureau a note containing the following indications concerning each of the international applications filed with it since the sending of the last such note.

(i) the name of the applicant,
(ii) a reproduction of the mark,
(iii) the date on which the international application was filed with that Office,
(iv) the date on which the international application was mailed to the International Bureau.

(c) The notes referred to in paragraph (b) shall be numbered consecutively.

(d) If the International Bureau does not receive any of the international applications listed in any note within 15 days from the date on which it received such note, it shall inform the national Office accordingly.

Rule 6

Optional Contents of the International Application

6.1 *Naming of a Representative*

The international application may indicate a representative.

6.2 *Claiming of Priority*

(a) The declaration referred to in Article 5(1)(b) shall consist of a statement to the effect that the priority of an earlier application is claimed and shall indicate:

(i) where the earlier application is an application filed for the registration of a mark in the register of marks of a given country, the country in which it was filed; where the earlier application is an international application filed under the Treaty, a State designated therein; where the earlier application is an application for a regional mark, the authority with which it was filed and a State for which it was filed;
(ii) the date on which the earlier application was filed;
(iii) the number allotted to the earlier application.

(b) If the declaration does not indicate the country or State, and the date, referred to in paragraph (a)(i) and (ii), the International Bureau shall treat the declaration as if it has not been made.

(c) If the application number referred to in paragraph (a)(iii) is not indicated in the declaration but is furnished by the applicant or the owner of the international registration to the International Bureau prior to the expiration of the 10th month from the filing date of the said application, it shall be considered to have been included in the declaration and shall be published by the International Bureau.

6.3 *Declaration of Intent To Use the Mark*

(a) Any declaration made under Article 19(4)(a) shall consist of the following statement:

> "The undersigned applicant declares that (he) (it) intends to use the mark which is the subject of this international application himself (itself) and/or by and through persons whose use inures to his (its) benefit in commerce with and/or on the territory of . . . [1] on and/or in connection with the goods and/or services listed in this international application."

[1] If the declaration relates to all the States designated in the international application, insert "each of the States designated in this application"; otherwise, indicate those of the States designated in respect of which the declaration is made.

(b) It shall depend on the national law of each designated State whether any declaration to the same effect as but worded differently than in paragraph (a) shall produce the effect provided for in Article 19(4)(a) in that State.

6.4 *Declaration of Actual Use*

In respect of any designated State, the following statement, signed by the applicant, may be made and attached to the international application:

> "The undersigned applicant declares that the following mark . . . [1] which is the subject of the international application to which this declaration is attached is now in use by and through . . . [2] in commerce with and/or on the territory of . . . [3] on
> or in connection with the following goods and/or services listed in respect of such State . . . [4]; that such use commenced on . . . [5]; and that the mode and manner in which the mark is used is:
>
> on labels or tags affixed to and/or containers for the goods, as evidenced by the attached specimen(s) or facsimile(s) [6];
> on displays which are associated with the goods, as evidenced by the attached specimen(s) or facsimile(s) [6];
> in the case of services, in advertising of such services, as evidenced by the attached specimen(s) or facsimile(s) [6];
> other [7]."

[1] Reproduce the mark. [2] Insert "the undersigned applicant" and/or, if applicable, the name and address of

the person or persons whose use of the mark inures to the benefit of the applicant in the State. [3] Insert name of State. [4] Insert "all" or indicate the particular goods and/or services on or in connection with which the mark is used. [5] Insert the date of commencement of the continuing use of the mark, including, where different dates are applicable to different goods and/or services, the particular goods and/or services to which each such date relates. [6] The inclusion of specimens or facsimiles may be dispensed with where the declaration is made in respect of a State whose national law does not require that specimens or facsimiles be attached to routine declarations of actual use. [7] Recite sufficient facts in addition to, or in lieu of, checking one or more of the above boxes as to sales or advertising, or both, to show that the mark is in current use.

6.5 *Declarations Under Articles 21(2) and 22(2)*

(a) Any declaration under Article 21(2), where included in the international application, shall:

(i) specify the designated State or States in respect of which it is made,

(ii) contain the statement that the applicant owns a national registration or national registrations of the same mark in the said State or States,

(iii) indicate, in respect of each such national registration, its number.

(b) Any declaration under Article 22(2), where included in the international application, shall:

(i) specify the designated State or States in respect of which it is made,

(ii) contain the statement that the applicant owns a Madrid registration of the same mark in respect of the said State or States,

(iii) indicate the relevant registration number under the Madrid Agreement.

6.6 *Option Under Article 11(3)*

The indication referred to in Article 11(3) shall be effected by identifying the appropriate national register or the appropriate part of the national register (for example, "Supplemental Register" or "Part B Register").

6.7 *Trade or Business of the Applicant*

The applicant may indicate in the international application the trade or business in which he is engaged.

6.8 *Translation of the Mark*

If the mark consists of or contains one or more words which can be translated into the language of the international application, that application may contain such translation.

Rule 7
Languages

7.1 *Language of the International Application*

The international application shall be in the English or in the French language.

7.2 *Language of the Request for Recording of Later Designations*

The request for the recording of any later designation shall be in the same language as that in which the international application was filed.

7.3 *Language of Registrations, Recordings, Annotations and Communications*

(a) Registrations, recordings and annotations by the International Bureau shall be in the same language as that in which the international application was filed.

(b) Any notification or other communication addressed by the International Bureau to the applicant or the owner of the international registration and any request, demand, declaration or other communication addressed by the applicant or the owner of the international registration to the International Bureau shall be in the same language as that in which the international application was filed.

(c) Notification by the national Offices to the International Bureau, and letters of other written communications from the national Offices to the International Bureau, shall be in the English or in the French language, it being understood that copies of papers filed by a third party in the case of an opposition proceeding attached to any notice of possible refusal and any copy referred to in Rule 20.3(a)(iii) shall be in the language in which such papers or copy were filed with the national Office.

(d) Letters from the International Bureau to any national Office shall be in English or French according to the wish of the national Office; any matter in such letters quoted from the International Register of Marks shall be in the language in which such matter appears in that Register.

(e) Where the International Bureau is under the obligation to forward to the applicant or the owner of the international registration any of the communications referred to in paragraph (c), it shall forward them in the language in which it received them.

Rule 8
Form of the International Application

8.1 *Printed Forms*

(a) The international application shall be made on the printed form referred to in paragraph (b) or on a paper identical, for all practical purposes, with that form as to size, content and layout.

(b) The International Bureau shall furnish free of charge, on request, to prospective applicants, attorneys, patent or trademark agents, and to the national Offices, printed forms for international applications. Such forms shall be established in the English language, in the French language, and in both of those languages.

(c) The form shall be filled in preferably by typewriter and shall be easily legible.

8.2 *Copies; Signature*

(a) Subject to Rule 5.3(c)(ii), the international application, including the reproduction of the mark and any attachments, shall be filed in one copy.

(b) The international application shall be signed by the applicant.

8.3 *No Additional Matter*

(a) The international application shall not contain any matter, and shall not be accompanied by any document, other than those prescribed or permitted by the Treaty or these Regulations.

(b) If the international application contains matter other than that prescribed or permitted, the International Bureau shall delete it ex officio; and if the international application is accompanied by any document other than those prescribed or permitted, the International Bureau shall treat such document as if it had not been transmitted to it and shall return the said document to the applicant.

Rule 9
Fees Payable With the Filing of the International Application

9.1 *International Application Fee and State Designation Fees*

(a) The fees payable with the international application shall be:

(i) an "international application fee," and, where Rule 5.3(c)(i) applies, a color reproduction fee,

(ii) in respect of each designated State, the individual State designation fee or the standard State designation fee, as the case may be.

(b) The amounts of the international application fee,

the color reproduction fee and the standard State designation fee are indicated in the Table of Fees.

(c) The amounts of the individual State designation fees concerning the various Contracting States shall be published by the International Bureau each year in the month of August. The amounts so published shall be applicable as the individual State designation fees from Jan. 1 to Dec. 31 of the year following the year in which they are published.

Rule 10

Mandatory Contents of the Request for the Recording of Later Designations

10.1 *Indication that the Request is for the Recording of Later Designations*

The indication referred to in Article 6(2)(a)(i) shall be worded as follows: "The undersigned applicant/owner of the international registration identified herein requests the recording in the International Register of Marks of the following later designations made under the Trademark Registration Treaty"; or it shall consist of a statement to the same effect.

10.2 *Indications Concerning the Applicant or the Owner of the International Registration*

Rule 5.2 shall apply, *mutatis mutandis*, in the case of Article 6(2)(a)(ii).

10.3 *Identification of the International Application or International Registration*

(a) The international application shall be identified by a copy of the same and, where it was filed direct with the International Bureau, the date on which it was filed with or mailed to the International Bureau or, where it was filed through the intermediary of a national Office, the name of that Office and the date on which it was received by or mailed to the said Office.

(b) The international registration shall be identified by its international registration number and date.

10.4 *Identification of the Later Designated States*

Rule 5.5 shall apply, *mutatis mutandis*, in the case of Article 6(2)(a)(iv).

10.5 *Indication of the Choice Between National Mark and Regional Mark*

The choice referred to in Article 6(2)(a)(v) shall be indicated by the words "national mark desired" or "regional mark desired," respectively, or by other words to that effect, appearing next to the name of the designated State to which the choice applies.

10.6 *Collective Marks and Certification Marks*

The indication referred to in Article 6(2)(a)(vi) shall consist of the words "collective mark desired" or "certification mark desired," respectively, or other words to that effect, appearing next to the name of the designated State to which the indication applies.

10.7 *Requests Filed Through the Intermediary of a National Office*

(a) The indication referred to in Article 6(3)(b) shall be worded as follows: "The . . . [1] certifies that the present request was filled with it on . . . [2]". [1] Indicate the name of the national Office. [2] Indicate the date.

(b) The national Office of any Contracting State whose national law provides that requests for the recording of later designations by residents of that State may be filed through the intermediary of the national Office of the said State shall, at least once a week, send to the International Bureau a note containing the following indications concerning each of the requests filed with it since the sending of the last such note:

(i) the name of the applicant or the owner of the international registration,

(ii) the international registration number and date to which the request refers or, where such number and date are not available, the reproduction of the mark, together with, where the international application was filed through the intermediary of the national Office, the date on which it was so received by such Office and the date on which it was mailed to the International Bureau or, where the international application was filed direct with the International Bureau, the date on which it was so filed or the date on which it was mailed to the International Bureau,

(iii) the date on which the request was filed with that Office,

(iv) the date on which the request was mailed to the International Bureau.

(c) The notes referred to in paragraph (b) shall be numbered consecutively. Where since the sending of the last note no requests have been filed with the national Office, the note shall state that fact.

(d) If the International Bureau does not receive any of the requests listed in any note within 15 days from the date on which it received such note, it shall inform the national Office accordingly.

Rule 11

Optional Contents of the Request for the Recording of Later Designations

11.1 *Claiming of Priority*

Rule 6.2 shall apply also to the declaration referred to in Article 6(2)(b).

11.2 *Declaration of Intent To Use*

(a) Any declaration made under Article 19(4)(a) shall consist of the following statement:

> "The undersigned applicant/owner of the international registration declares that he (it) intends to use the mark which is the subject of the international application/international registration to which this request relates himself (itself) and/or by and through persons whos use inures to his (its) benefit in commerce with and/or on the territory of . . . [1] on and/or in connection with the goods and/or services listed in this request."

[1] If the declaration relates to all the States designated in the request, insert "each of the States designated in this request"; otherwise, indicate those of the States designated in the request in respect of which the declaration is made.

(b) It shall depend on the national law of each designated State whether any declaration to the same effect as but worded differently than in paragraph (a) shall produce the effect provided for in Article 19(4)(a) in that State.

11.3 *Declaration of Actual Use*

In respect of any State designated in the request for recording of later designations, a statement, signed by the applicant or the owner of the international registration and whose form shall be the same as that appearing in Rule 6.4 or Rule 26.3, as the case may be, may be made and attached to the request.

11.4 *Declarations Under Articles 21(2) and 22(2)*

Rule 6.5 shall apply, *mutatis mutandis*, to any declaration under Articles 21(2) or 22(2), where such declaration is included in the request for the recording of later designations.

11.5 *List of Goods and/or Services*

The formal concept of limitation referred to in Article 6(2)(b), second sentence, is defined in Rule 24.2

11.6 *Option Under Article 11(3)*

The indication referred to in Article 11(3) shall be effected by identifying the appropriate national register

or the appropriate part of the national register (for example, "Supplemental Register" or "Part B Register").

Rule 12

Form of the Request for the Recording of Later Designations

12.1 *Printed Forms*

(a) The request for the recording of later designations shall be made on the printed form referred to in paragraph (b) or on a paper identical, for all practical purposes, with that form as to size, content and layout.

(b) The international Bureau shall furnish free of charge, on request, to applicants, owners of international registrations, attorneys, patent or trademark agents, and to the national Offices, printed forms for requests for the recording of later designations. Such forms shall be established in the English language, in the French language, and in both of those languages.

(c) The form shall be filled in preferably by typewriter and shall be easily legible.

12.2 *Copies; Signature*

(a) The request for the recording of later designations and any attachments thereto shall be filed in one copy.

(b) The request shall be signed by the applicant or the owner of the international registration.

12.3 *No Additional Matter*

Rule 8.3 shall also apply to requests for the recording of later designations.

Rule 13

Fees Payable With the Request for the Recording of Later Designations

13.1 *International Later Designation Fee and State Designation Fees*

(a) The fees payable with the request for the recording of the later designation of any Contracting State shall be the following:

(i) an "international later designation fee," and, where Rule 5.3(c)(i) applies, a color reproduction fee,

(ii) in respect of each later designated State indicated in the request, the individual State designation fee or the standard State designation fee, as the case may be.

(b) The amounts of the international later designation fee, the standard State designation fee and the color reproduction fee are indicated in the Table of Fees.

Rule 14

Defects in the International Application

14.1 *Minimum Amount Under Article 7*

The minimum amount referred to in Article 7(2)(a)(ix) and (3)(a)(i) shall be an amount equivalent to the amount of the international application fee referred to in Rule 9.1(a(i).

14.2 *Notification, and Reimbursement of Certain Fees, Under Article 7(5)*

(a) Where the International Bureau declines the international application, it shall notify the applicant accordingly and shall state the grounds for declining. It shall reimburse to the applicant all fees received from him except an amount equivalent to the international application fee referred to in Rule 9.1(a)(i).

(b) Where the International Bureau declines to record a State as a designated State either on the ground referred to in Article 7(3)(b) or on the ground that the said State is not a Contracting State, it shall reimburse to the applicant any fee received from him in respect of the attempted designation of that State.

14.3 *Notification of the National Office*

Where the international application is treated as provided for in Article 7(6), the International Bureau shall inform accordingly the national Office through the intermediary of which the application was filed.

Rule 15

Defects in the Request for the Recording of later Designations

15.1 *Application of Rule 14*

Rule 14 shall apply, *mutatis mutandis*, in respect of Article 8, provided that the amount referred to in Rules 14.1 and 14.2(a) shall be an amount equivalent to the amount of the international later designation fee referred to in Rule 13.1(a)(i).

Rule 16

Procedure Where Avoiding the Effects of Declining Is Sought

16.1 *Recording and Publication Under Article 9(3)*

(a) The fact of having received a copy of a petition under Article 9(1)(i) shall, where the petition relates to a mark which is already registered in the International Register of Marks, be recorded by recording the subject of the petition, the name of the national Office to which it appears to be addressed, and the date on which the said copy was received.

(b) The publication under Article 9(3) shall contain the international registration number of the mark, the name of the State to whose national Office the petition appears to have been addressed, and the date on which the copy of the petition was received by the International Bureau.

16.2 *Information Available to National Offices*

On the request of the applicant or the owner of the international registration, or of the interested national Office, the International Bureau shall send to that Office a copy of the file of the declined international application or declined request for the recording of later designations, together with a memorandum setting out the grounds for and the various steps leading to the declining of the said application or request.

16.3 *Information Furnished by the National Office*

Any request by a national Office referred to in Article 9(2)(i) shall indicate the grounds on which it is based.

Rule 17

Certificates

17.1 *Certificates of International Registration and Certificates of Recording of Later Designations*

(a) The certificates referred to in Articles 7(1) and 8(1) shall be issued in the name of the International Bureau and shall be signed by the Director General or an officer of the International Bureau authorized to do so by the Director General.

(b) Any such certificate shall consist of a facsimile of the publication of the international registration or of the publication of the recording of the later designations, as the case may be, and a statement to the effect that the said registration or recording reproduced in the certificate has been effected in the International Register of Marks.

(c) The certificate shall be promptly sent to the owner of the international registration.

Rule 18

Publication of International Registrations and Recordings of later Designations

18.1 *Contents of Publication of International Registrations*

(a) The publication of any international registration shall contain:

(i) the name and address of the owner of the international registration, together with any indication of his trade or business and, if he bases his right to file international applications on his residence in, or his nationality of, a State other than that in which he has his address, the name of the State of his residence or nationality, as the case may be.
(ii) the reproduction of the mark, together with any indication under Rule 5.3(d) or (e) and any transliteration and translation; where color is claimed, the reproduction shall be in color if Rule 5.3(c)(i) applies, and it shall be in black and white and shall be accompanied by a description of the colors in words and signs if Rule 5.3(c)(ii) applies,
(iii) the list of goods and/or services,
(iv) the names of the designated States and, where applicable, after the name of each such State, an indication concerning the choice referred to in Rule 5.6 and the indication referred to in Rule 5.7,
(v) the international registration date,
(vi) the international registration number,
(vii) where the priority of one or more earlier applications is claimed, the date of filing and the number (if) available) of such applications, the name of the country or countries in which or for which they were filed, and, where applicable, an indication that the application was filed under this Treaty or, where it was for a regional mark, an indication of the authority with which it was filed.
(vii) any indication under Article 11(3),
(ix) any declaration under Articles 21(2) and 22(2),
(x) the particulars concerning the representative, as provided in Rule 39.2(a).

(b) Where, in respect of any designated State, the international registration is effected pursuant to Article 9(2) (i), this fact shall be indicated in the publication.

(c) The Administrative Instructions shall provide for the composition and allocation of international registration numbers.

18.2 *Contents of Publication of Recordings of later Designations*

(a) The publication of any recording of a later designation shall contain:

(i) *mutatis mutandis,* the same elements as those referred to in Rule 18.1(a),
(ii) the international later designation number,
(iii) the date of the recording of the later designation.

(b) Where the recording of any later designation is effected pursuant to Article 9(2)(i), this fact shall be indicated in the publication.

The Administrative Instructions shall provide for the composition and allocation of international later designation numbers.

(d) Where the recording of any later designation was effected sufficiently prior to the date of publication of the international registration to be practical to do so, the publication of the recording of the later designation shall be consolidated with the publication of the international registration.

Rule 19

Notification of International Registrations and Recordings of later Designations

19.1 *Form of Notification*

The notification referred to in Article 10(2) shall be effected separately for each national Office and shall consist of:

(i) a list of the international registration numbers and the international later designation numbers of the international registrations and recordings of later designations in which the State of the said Office has been designated,
(ii) reprints made of the publication by the International Bureau of each international registration and of each recording of later designations referred to in the said list,
(iii) a copy of the international application or the request for the recording of later designations if it contains a declaration made under Article 19(4)(a).
(iv) a copy of any declaration made under Rules 6.4 or 11.3,
(v) where Rule 5.3(c)(ii) applies, the reproduction in color of the mark in the number of copies specified in the Administrative Instructions, provided that such Instructions shall enable each Office to require at least six copies.

19.2 *Time of Notification*

The notification shall be effected on the same day as that on which the issue of the Gazette is published that contains the matter from which the reprints referred to in Rule 19.1(ii) are made.

Rule 20

Refusals; Notices of Possible Refusal

20.1 *Notifying the International Bureau; Grounds*

(a) Any notification under Article 12(2)(a) shall be sent in one copy, preferably on a form furnished free of charge by the International Bureau to the national Office of each contracting State. The notification shall, in any case, contain:

(i) the international registration number of the international registration, or the international later designation number of the later designation, as the case may be, to which the refusal or the notice of possible refusal relates,
(ii) the name of the owner of the international registration,
(iii) an indication of the mark in the cases and the manner provided for in paragraph (b),
(iv) an indication as to whether the notification is that of a refusal or of a notice of possible refusal,
(v) where it relates to some only of the goods and/or services listed, identification of those to which it relates,
(vi) the grounds referred to in Article 12(2)(a)(ii) and (iii), together with a reproduction of any mark cited in the notification and not reproduced therein and a copy of the list of goods and/or services (in the original language) pertaining to such mark, and when the notice of possible refusal specifies the grounds by reference to the opposition of a third party, a copy of any document filed by the opposing party in which the said grounds are specified, together with a reproduction of any mark cited in the said document and not reproduced therein and a copy of the list of goods and/or services pertaining to such mark; where the grounds specified by the national Office in the notice of possible refusal do not include the grounds or some of the grounds invoked in the document filed by the opposing party and transmitted together with the said notice by the national Office, all the grounds contained in the said document shall be considered as having been specified by the national Office,
(vii) an indication as to whether any remedy is available, and if so with which authority it has to be sought and within what time limit.

(b) The cases and the manner referred to in paragraph (a)(iii) and in Rules 2.1.(a)(ii) and 28.1(c)(ii) shall be as follows:

(i) where the mark consists of letters of the Latin alphabet, Arabic or Roman numerals, and punctuation signs usual in connection with the Latin alphabet, without any special graphic features and without also containing figurative elements, the indication shall consist of the letters, numerals and signs,
(ii) where item (i), above, does not apply, the indication shall consist of a reproduction of the mark.

(c) The form referred to in paragraph (a) shall be prepared separately for each Contracting State, in collaboration with its national Office. It shall list the more common of the grounds for refusal with a reference to the pertinent provisions of the national law so that, wherever possible, such grounds may be specified by marking the applicable items of the list. The form shall contain a space reserved for specifying any other grounds and for other possible indications.

20.2 *Notifying the Owner of the International Registration; Publication*

(a) The notification under Article 31, of the recording effected under Article 12(4)(a) shall be sent to the owner of the international registration promptly after the receipt of the notification referred to in Article 12(2)(a); it shall indicate the date on which the notification made under Article 12(2)(a) was received by the International Bureau and shall include a copy thereof.

(b) The publication of the recording effected under Article 12(4)(a) shall be effected promptly and shall contain:

(i) the international registration number of the international registration, or the international later designation number of the later designation, as the case may be, to which the refusal or the notice of possible refusal relates, and the name of the owner of the international registration,
(ii) the name of the State whose national Office transmitted the notification,
(iii) a statement to the effect that a notification uner Article 12(2)(a) was received.

20.3 *Notification and Recording of Final Decisions of Refusal; Cancellation of the designation, and Publication of the Cancellation*

(a) The notification by the national Office under Article (12)(4)(b) shall be effected promptly after the date on which the date on which the decision of refusal becomes final and shall contain:

(i) an indication that it relates to a final decision of refusal,
(ii) the indications referred to in Rule 20.1(a)(i),
(iii) where the decision is that of a court; a copy of the final decision, or, where the decision is not that of a court, the grounds given in the final decision, preferably in the same manner as that indicated in Rule 20.1(c),
(iv) where the notification relates to some only of the goods and/or services listed, identification of those to which it relates,
(v) the name of the authority which pronounced the decision, the number, if any, and the date of such decision,
(vi) the date on which the decision became final.

(b) The notification by the International Bureau under Article 12(4)(b) shall be effected as soon as possible and shall include a copy of the notification referred to in paragraph (a), as well as the name of the State whose authorities have pronounced the final decision and an indication of the date of the receipt of such notification by the International Bureau.

(c) The details of the recording referred to in Article 12(4)(b) shall be provided in the Administrative Instructions.

(d) The publication referred to in Article 12(4)(b) shall be effected promptly and shall consist of the indications contained in the notification referred to in paragraph (a)(i) and (iv) to (vi), above, as well as the name of the State whose authorities have pronounced the final decision and the name of the owner of the international registration.

20.4 *Notification and Publication Where Final Decision Results in Acceptance of the Effect Provided for in Article 11(2)*

(a) The notification under Article 12(4)(c) shall be effected promptly after the final disposal of the case and shall consist of a statement to the effect that the notice of possible refusal or the refusal is withdrawn, the indications referred to in Rule 20.1(a)(i), the number, if any, and the date of the decision, and the date on which the decision became final.

(b) The publication referred to in Article 12(4)(c) shall be effected promptly and shall consist of the elements referred to in paragraph (a), as well as the name of the State whose authorities have pronounced the final decision and the name of the owner of the international registration.

20.5 *Belated Notifications*

If any notification referred to in Article 12(2)(a) is received by the International Bureau after the expiration of the time limit fixed in that provision, the International Bureau shall inform accordingly the national Office which effected the notification, treat such notification as if it had not been effected, inform the owner of the international registration that the notification it received is belated, and send to the owner a copy thereof.

Rule 21

Final Decisions of Cancellation

21.1 *Notification and Recording of Final Decisions of Cancellation; Cancellation of the Designation, and Publication of the Cancellation*

(a) The notification referred to in Article 13(3) shall be effected promptly after date on which the decision of cancellation becomes final and shall contain:

(i) the international registration number of the international registration, or the international later designation number of the later designation, as the case may be, to which the final decision of cancellation relates,
(ii) an indication of the mark in the cases and the manner provided for in Rule 20.1(b),
(iii) where the final decision relates to some only of the goods and/or services listed, identification of those to which it relates,
(iv) the name of the authority which pronounced the final decision,
(v) the number, if any, and the date of such decision,
(vi) the date on which the decision became final.

(b) The details of the recording referred to in Article 13(3) shall be provided in the Administrative Instructions.

(c) The publication referred to in Article 13(3) shall be effected promptly and shall consist of the indications contained in the notification referred to in paragraph (a), as well as the name of the State whose authorities have pronounced the final decision of cancellation and the name of the owner of the international registration.

Rule 22

Changes in Ownership

22.1 *Request for Recording of Change in Ownership*

(a) The indication referred to in Article 14(1)(b)(i) shall preferably be worded as follows: "The undersigned requests that the following change in ownership concerning the international registration identifed herein be recorded."

(b) Rule 5.2 shall apply, *mutatis mutandis*, to the indications concerning the new owner referred to in Article 14(1)(b)(iii).

(c) The designated States referred to in Article 1491)(b)(iv) shall be identified by their names in a manner sufficiently clear for the purpose, provided that where the request relates to all the States designated in the existing international registration, they may be identified by a statement to that effect.

(d) The goods and/or sevices referred to in Article 14(1)(b)(iv) shall be identified as follows:

(i) where the request relates to all of the designated

States and all of the goods and/or services listed in respect of each of those States, by a statement to that effect,

(ii) where the request relates to all of the designated States and the list of goods and/or services, while being the same for each, is more limited than in the international registration, by a new list and by a statement to the effect that it applies to all of the designated States,

(iii) in all other cases, in respect of those States for which the list of goods and/or services is the same as in the existing international registration, by a statement to that effect, and, in respect of those States for which the list of goods and/or services is more limited than the list of goods and/or services in the existing international registration, by a new list.

(e) The attestation referred to in Article 14(1)(c) shall be worded as follows:

"According to evidence produced before this Office, . . . [1] appears to be the successor in title of . . [2] to the extent described in the present request, and the conditions referred to in Article 14(1)(c) of the Trademark Registration Treaty appear to be fulfilled. This attestation is given for the sole purpose of allowing the change of ownership to be recorded in the International Register of Marks."

[1] Insert the name of the new owner. [2] Insert the name of the earlier owner.

(f) The attestation shall be dated and shall bear the stamp or seal of the national Office and the signature of an official thereof.

(g) the amount of the fee referred to in Article 14 (1)(d) is indicated in the Table of Fees.

(h) The request may contain an indication of the trade or business in which the new owner is engaged.

22.2 *Publication Where the Change in Ownership is Total*

(a) Where the change in ownership concerns all the designated States and all the goods and/or services, the publication referred to in Article 14(1)(d) shall contain:

(i) an indication that the change in ownership concerns all the designated States and all the goods and/or services,

(ii) the name and address of the new owner together with the indication, if any was given by him, of his trade or business and, if he bases his right to own international registrations on his residence in, or his nationality of, a State other than that in which he has his address, the name of the State of his residence or nationality, as the case may be,

(iii) the name of the earlier owner,

(iv) the date on which the International Bureau received the request,

(v) a reference to all the prior publications concerning the international registration except those which have been superseded by later publications in respect of that registration.

(b) The publication shall be effected under the number of the international registration, and, where applicable, the numbers of later designations to which it refers, followed by such further indications as the Administrative Instructions shll provide.

22.3 *Publication Where the Change in Ownership is Partial*

(a) Where the change in ownership concerns fewer than all of the designated States and/or some only of the goods and/or services, the publication referred to in Article 14(1)(d) shall contain two parts, one concerning the new owner, the other the earlier owner.

(b) The part concerning the new owner shall contain:

(i) an indication that the publication is effected pursuant to a request for the recording of a change in ownership,

(ii) the date on which the International Bureau recieved the request,

(iii) the number under which the part concerning the earlier owner is published,

(iv) the name and address of the new owner together with the indication, if any was given by him, of his trade or business and, if he bases his right to own international registrations on his residence in, or his nationality of, a State other than that in which he has his address, the name of the State of his residence or nationality, as the case may be,

(v) all the indications which, prior to the date referred to in item (ii), were published in respect to the international registration and which have not been superseded by later publications in respect of that registration, except those indications which solely concern designated States and goods and/or services in respect to which ownership is retained by the earlier owner.

(c) The part concerning the earlier owner shall contain:

(i) an indication that the publication concerns an existing international registration and contains those elements of that registration which, after the recording of the change in ownership concerning that registration, continue to concern the earlier owner,

(ii) the number under which the part concerning the new owner in published,

(iii) the date on which the International Bureau received the request,

(iv) all the indications which, prior to the date referred to in item (iii), were published in respect of the international registration and have not been superseded by later publications in respect of that registration, except those indications which, because of the change in ownership, no longer concern the earlier owner.

(d) Each part shall have an number and possibly also an appropriately worded heading. The Administrative Instructions shall provide the details of such numbers and headings.

22.4 *Notification of Recording of Changes*

(a) The notifications referred to in Article 14(1)(d) shall be effected by sending reprints of the publication referred to in Rules 22.2 and 22.3.

(b) The transmittal to designated Offices of the reprints referred to in paragraph (a) shall be accompanied by a list of the numbers referred to in Rules 22.2(b) and 22.3(d) relating to recordings concerning the designated State to which the list is addressed. Rule 19.2 shall apply, *mutatis mutandis.*

22.5 *Notification of Declining of the Recording*

The notification referred to in Article 14(2)(a) shall be effected by letter. The letter shall state the grounds for declining.

22.6 *Denial*

(a) The notification by the national Office referred to in Article 14(4)(c) shall:

(i) refer to the fact of the denial,

(ii) identify the authority that pronounced the denial and the date on which it was pronounced,

(iii) indicate the relevant number or numbers referred to in Rule 22.2(b) and 22.3(d),

(iv) contain a brief indication of the grounds for the denial.

(b) The recording and the publication referred to in Article 14(4)(c) shall contain:

(i) the elements referred to in paragraph (a),

(ii) the date on which the International Bureau received the notification referred to in paragraph (a),

(iii) a reference to the publication of the recording effected under Article 14(1)(d).

(c) The notification by the International Bureau referred to in Article 14(4)(c) shall be sent to the earlier and the new owners and to the national Office which notified the denial.

Rule 23

Changes in the Name of the Owner of the International Registration

23.1 *Request for Recording of Change in the Name*

(a) The indication and declaration referred to in Article 15(2)(b)(i) and (ii) shall preferably be worded as follows: "The undersigned requests that the following change in the name of the owner of the international registration(s) identified herein be recorded. He declares that this change in his name does not amount to change in ownership."

(b) Rules 5.2(a) shall apply, *mutatis mutandis*, to the indication of both the former and the new names of the owner of the international registration.

(c) The amount of the fee referred to in Article 15(2)(d) is indicated in the Table of Fees.

23.2 *Publication*

(a) The publication referred to in Article 15(3) shall contain:

(i) an indication to the effect that it concerns a change in the name of the owner of the international registration,
(ii) the former name of the owner,
(iii) the new name of the owner,
(iv) the international registration number of the international registration in respect of which the recording has been effected,
(v) the date on which the International Bureau received the request,
(vi) a reference to all the prior publications concerning the international registration except those which have been superseded by later publication in respect of the international registration conerned.

(b) The publication shall be effected under the number of the international registration, and, where applicable, the numbers of later designations to which it refers, followed by such further indications as the Administrative Instructions shall provide.

23.3 *Notification of Recording*

(a) The notifications referred to in Article 15(3) shall be effected by sending reprints of the publication referred to in Rule 23.2

(b) The transmittal to designated Offices of the reprints referred to in paragraph (a) shall be accompanied by a list of the numbers referred to in Rule 23.2(b) relating to recordings concerning the designated State to whose national Office the list is addressed. Rule 19.2 shall apply, *mutatis mutandis*.

23.4 *Notification of Declining the Recording*

The notification referred to in Article 15(4) shall be effected by letter. The letter shall state the grounds for declining.

23.5 *Denial*

(a) The notification by the national Office referred to in Article 15(6)(b) shall:

(i) refer to the fact of the denial,
(ii) identify the authority which pronounced the denial and the date on which it was pronounced,
(iii) indicate the relevant number or numbers referred to in Rule 23.2(b),
(iv) contain a brief indication of the grounds for the denial.

(b) The recording and the publication referred to in Article 15(6)(b) shall contain:

(i) the elements referred to in paragraph (a),
(ii) the date on which the International Bureau received the notification referred to in paragraph (a),
(iii) a reference to the publication of the recording effected under Article 15(3).

(c) The notification by the International Bureau referred to in Article 15(6)(b) shall be sent to the owner of the international registration and to the national Office which notified the denial.

Rule 24

Recording of Limitations of the List of Goods and/or Services

24.1 *Request for Recording of Limitation of the List*

(a) The request for recording referred to in Article 16(1) shall indicate its purpose and contain:

(i) the name of the owner of the international registration,
(ii) the international registration number,
(iii) the desired limitation of the list of goods and/or services,

(iv) where the request relates to fewer than all the designated States, identification of those States to which it relates,
(v) where the request relates to one only of the designated States and, while not conforming with the formal concept of limitation ad defined in Rule 24.2(a) and (b), it conforms with a decision of the national Office or other competent authority of such State concerning the international registration, a copy of such decision and, if the decision is in a language other than English or French, a translation of such decision.

(b) The request shall be signed by the owner of the international registration.

(c) The amount of the fee referred to in Article 16(2) is indicated in the Table of Fees.

(d) Where any term which is the subject of the request appears under more than one class of the International Classification and the request does not identify the class or classes to which it relates, such request shall be treated as if it related to the term under each of the classes under which it appears.

24.2 *Formal Concept of Limitation*

(a) Subject to paragraph (c), any request under Article 16(1) shall be regarded as conforming with the formal concept of limitation if it is presented in any of the following forms:

(i) it asks for the deletion of one or more terms in the list of goods and/or services,
(ii) it asks for the insertion of one or more words, linked to the existing term by words (such as "except") which, from the point of view of syntax, make it clear that the inserted word or words are meant to be excluded from the existing term (for example, *milk products* (existing term) *except* (linking word) *condensed milk* (inserted words)),
(iii) it asks for the insertion of one or more words linked to the existing term by words (such as "provided that") which, from the point of view of syntax, make it clear that the inserted words are covered by the existing term (for example, *pineapples* (inserted word) *provided that they are* (linking words) *canned fruits* (existing term)).

(b) Unless the limitation is presented in one of the forms described in paragraph (a), it shall not, subject to paragraph (c), be regarded as conforming with the formal concept of limitation, however clear it may be that, in the ordinary sense of the word, there is a limitation (for example, replacing the term "milk products" by "condensed milk").

(c) For the purposes of Rule 24.1(a)(v), any change in the list of goods and/or services decided upon by the national Office or other competent authority concerned shall be deemed to conform with the formal concept of limitation.

24.3 *Recording, Publication, and Notification, of Limitation of the List*

(a) If the request complies with the prescribed requirements, the International Bureau shall record the in-

dications referred to in Rule 24.1(a)(i) to (iv) and the date on which the request was received.

(b) Where the request is based on a decision referred to in Rule 24.1(a)(v), this fact, together with the following particulars, shall also be recorded:

(i) the name of the authority which pronounced the decision,
(ii) the number, if any, and the date of such decision.

(c) The publication and the notification referred to in Article 16(2) shall contain the indications referred to in Rule 24.1(a)(i) to (iv), the indications referred to in paragaph (b) and the date of the recording.

24.4 *Declining the Recording of Limitation of the List*

If the request does not comply with the prescribed requirements, the International Bureau shall decline the recording of the limitation and shall notify the owner of the international registration accordingly. The notification shall include the grounds for declining.

24.5 *Invitation to Record Limitation of the List; Recording, Publication and Notification*

(a) The invitation by the national Office referred to in Article 16(5)(a) or (b) shall:

(i) indicate the relevant international registration number and date,
(ii) indicate the name of the owner of the international registration,
(iii) refer to the declining of the request of the owner or to the recording of the limitation by the International Bureau, as the case may be,
(iv) indicate the finding of the national Office or other competent authority together with a brief indication of its grounds,
(v) where the finding is contained in a decision, indentify the authority which pronounced the decision and the date on which it was pronounced,
(vi) where, under Article 16(5)(b), the limitation is found to be a limitation only in part, specify the extent to which it is found to be a limitation.

(b) The recording and the publication referred to in Article 16(5)(c) shall contain:

(i) the elements referred to in paragraph (a),
(ii) the date on which the International Bureau received the invitation referred to in paragraph (a),
(iii) a reference to the publication of the recording, if any, effected under Article 16(1).

(c) The notifications by the International Bureau referred to in Article 16(5)(c) shall be sent to the national Office which sent the invitation.

Rule 25
Renewal

25.1 *Reminder by the International Bureau*

The International Bureau shall send a letter to the owner of the international registration before the expiration of the term, initial or renewal (as the case may be), which is in effect, reminding him that such term is about to expire. Further details concerning the contents of the reminder shall be provided in the Administrative instructions. The reminder shall be set at least 6 months before the expiration date. Failure to send or receive the reminder, or the fact of sending or receiving it outside the said period, or any error in the remainder, shall not affect the expiration date.

25.2 *Demand for Renewal*

(a) Any demand for renewal may exclude any of the designated States.

(b) Any demand for renewal may exclude in respect of any of the designated States all the goods and/or services appearing in the international registration under a given class or under given classes of the International Classification.

(c) The demand for renewal referred to in Article 17(3)(a) shall preferably be made on a printed from furnished free of charge by the International Bureau together with the remainder referred to in Rule 25.1. The demand shall, in any case, indicate its purpose and contain:

(i) the name and address of the owner of the international registration,
(ii) the international registration number,
(iii) where the demand contains any exclusion under paragraphs (a) or (b), the identification of the state or State and/or the class or classes referred to in paragraph (b).

(d) Where the demand contains any exclusion under paragraphs (a) or (b), it shall be signed by the owner of the international registration.

(e) The demand for renewal shall not be combined with any other request; in particular, it shall not contain a request for recording a later designation, a request for recording a change in ownership, or, subject to paragraph (b), a request for recording a limitation in the list of goods and/or services.

(f) Rule 8.3 shall also apply to demands for renewal, provided that any declaration under Article 19(3)(d) may be filed at the same time as the demand for renewal.

25.3 *International Renewal Fee and State Renewal Fees*

(a) The fees payable under Article 17(3)(a) shall be the following:

(i) an "international renewal fee," and, where Rule 5.3(c)(i) applies, a color reproduction fee, as well as, where applicable, the "renewal surcharge" referred to in Article 17(3)(a),
(ii) in respect to each designated State to which the demand relates the individual State renewal fee or the standard State renewal fee, as the case may be.

(b) The amounts of the international renewal fee, the color reproduction fee, the renewal surcharge and the standard State renewal fee are indicated in the Table of Fees.

(c) The amounts of the individual State renewal fees concerning the various Contracting States shall be published by the International Bureau each year in the month of Aug. The amounts so published shall be applicable as the individual State renewal fees from Jan. 1 to Dec. 31 of the year following the year in which they are published.

25.4 *Imperfect Demands*

(a) Where, within the time limits fixed in Article 17(3)(a), the International Bureau receives:

(i) a demand which does not conform with the requirements or Rule 25.2, or
(ii) a demand but no payment or insufficient payment to cover the renewal fees and any surcharge that is due, or
(iii) money which appears to be intended to cover fees connected with renewal but not demand,

it shall, whenever practicable, promptly invite the owner of the international registration to present a correct demand, to pay or complete the renewal fees and any surcharge that is due, or to present a demand, as the case may be. The invitation shall indicate the applicable time limits.

(b) Failure to send or receive the invitation referred to in paragraph (a), or any delay in dispatching or receiving such invitation, or any error in the invitation, shall not prolong the time limits fixed in Article 17(3)(a).

25.5 *Recording, Publication, and Notification*

(a) Where the demand is presented and the fees are paid as prescribed, the International Bureau shall record the renewal and shall publish the elements, as specified in paragraph (b), of the international registration as it

stands on the first day of the term of renewal, together with an indication both of the fact that the publication is that of a renewal and of the date on which the renewal shall expire.

(b) The elements referred to in paragraph (a) shall be the following:

(i) the name and address of the owner of the international registration, together with the indication, if any was given by him, of his trade or business and, if he bases his right to own international registrations on his residence in, or his nationality of, a State other than that in which he has his address, the name of the State of his residence or nationality, as the case may be,

(ii) the reproduction of the mark, together with any indication under Rule 5.3(d) or (e) and any transliteration and translation; where color is claimed, the reproduction shall be in color if Rule 5.3(c)(i) applies, and it shall be in black and white and shall be accompanied by a description of the colors in words and signs if Rule 5.3(c)(ii) applies,

(iii) the list of goods and/or services, provided that, where the list of goods and/or services differs in respect of different designated States, the publication shall contain appropriate indications in order to show which goods and/or services relate to which designated State,

(iv) the names of the designated States and, where applicable, after the name of each such State, and indication concerning the choice referred to in Rule 5.6 and the indication referred to in Rule 5.7,

(v) where, in respect of any designated State, a refusal or notice of possible refusal was notified and no final decision resulting in the cancellation of the designation or in the acceptance of the effect referred to in Article 11(2) has been notified, an indication that a refusal or notice of possible refusal was notified, together with the date of the receipt by the International Bureau of the notification of the refusal or notice of possible refusal,

(vi) the international registration number,

(vii) any international later designation number,

(viii) where the priority of one or more earlier applications was claimed, a statement that such claim has been made,

(ix) a reference to any indication under Article 11(3),

(x) a reference to any declaration under Articles 21(2) and 22(2),

(xi) particulars concerning the representative, as provided in Rule 39.2(a).

(c) Any indication which, at some time prior to the first day of the term of renewal, has been part of the international registration but which, before that day, has been cancelled or superseded shall not be included in the publication referred to in paragraph (a).

(d) The notification under Article 31 shall be effected by sending to the owner of the international registration a reprint of the publication of the renewal referred to in paragraph (a).

(e) The International Bureau shall notify each designated Office of the renewal by sending it:

(i) a reprint of the publication referred to in paragraph (a), and

(ii) where Rule 5.3(c)(ii) applies, the reproduction of the mark in the number of copies specified in the Administrative Instructions, provided that such Instructions shall enable each national Office to require at least six copies.

25.6 *Declining the Demand*

(a) Where the limits fixed in Article 17(3)(a) are not respected or where the demand does not conform with the requirements of Rule 25.2 or the fees (including, where applicable, any surcharge) are not paid as prescribed, the International Bureau shall decline the demand and shall notify the owner of the international registration by letter. The letter shall state the grounds for declining.

(b) The International Bureau shall not decline any demand before the expiration of 6 months after the starting date of the term of renewal.

25.7 *Reimbursement of Certain Fees*

Where, under Rule 25.6(a), the International Bureau declines the demand, it shall reimburse to the owner of the international registration all fees received from him except an amount equivalent to the international renewal fee referred to in Rule 25.3(a)(i).

25.8 *Recording of Lack of Demand*

Where, by the expiration of 6 months after the starting date of the term of renewal, no demand for renewal is presented to the International Bureau in respect of any or all of the designated States, such fact shall be recorded by the International Bureau.

25.9 *Publication of Lists of International Registrations Not Renewed*

The International Bureau shall publish, at intervals specified in the Administrative Instructions, a list of the international registration numbers of those international registrations which, having become due for renewal, have been renewed in respect of none of the designated States.

Rule 26

Declarations of Actual Use

26.1 *Information on Requirement Concerning Routine Declarations of Actual Use*

The national Office of any Contracting State whose national law requires the filing of rountine declarations referred to in the first sentence of Article 19(3)(d) shall in form the International Bureau of such requirement and of any changes therein. Such information shall, in particular, indicate the time limits within which such declarations must be filed according to the national law and state whether the attachment of specimens or facsimiles to routine declarations of actual use is required by the national law. Any information received shall be published promptly upon receipt. Furthermore, the International Bureau shall republish in Aug. of each year all the information received and still applicable at the time of the republication in respect of all the States concerned.

26.2 *National Forms*

The national Office of any Contracting State referred to in Rule 26.1 shall supply free of charge to the International Bureau in reasonable quantities declaration forms, in the form prescribed by the national law of that State, for the purposes of making declarations referred to in Article 19(3)(d). The International Bureau shall furnish such forms free of charge to interested persons.

26.3 *International Form*

(a) Where the declaration referred to in Article 19(3)(d) is not made on a national form according to Rule 26.2, it shall be made on a form ("international form") consisting of the following statement and shall be signed by the owner of the international registration:

> "The undersigned owner of the international registration declares that he (it) is the owner of the international registration which was effected under No. . . . , as shown by recordings in the International Register of Marks, in respect of . . . [1] on . . . [2] ; that the mark which is the subject of the international registration herein identified is now in use by and through . . . [3] in commerce with and/or on the territory of the said State on or in connection with the following goods and/or services listed in respect of such State: . . . [4] ; that such use commenced on . . . [5] ; and that the mode or manner in which the mark is used is:
>
> on labels or tags affixed to and/or containers

for the goods, as evidenced by the attached specimen(s) or facsimile(s) [6] ;
on displays which are associated with the goods, as evidenced by the attached specimen(s) or facsimile(s) [6] ;
in the case of services in advertising of such services, as evidenced by the attached specimen(s) or facsimile(s) [6] ;
other [7] ."

[1] Insert name of State. [2] Insert international registration date or, if applicable, recording date of the later designation of such State. [3] Insert "the undersigned owner" and/or, if applicable, the name and address of the person or persons whose use of the mark inures to the benefit of the owner in the State. [4] Insert "all" or indicate the particular goods and/or services on or in connection with which the mark is used. [5] Insert the date of commencement of the continuing use of the mark, including, where different dates are applicable to different goods and/or services, the particular goods and/or services to which each such date relates. [6] The inclusion of specimens or facsimiles may be dispensed with where the declaration is made in respect of a State whose national law does not require that specimens or fascimiles be attached to routine declarations of actual use. [7] Recite sufficient facts in addition to, or in lieu of, checking one or more of the above boxes as to sales or advertising, or both, to show that the mark is in current use.

(b) The International Bureau shall furnish such forms free of charge to interested persons.

(c) The inclusion of specimens or facsimiles may be dispensed with where the declaration is made in respect of a State whose national law does not require that specimens or facsimiles be attached to routine declarations of actual use.

(d) The specimens referred to in paragraph (a) shall, in the case of a mark for goods, be duplicates of the actually used labels, tags, or containers, or the displays associated therewith, or portions thereof, when made of suitable material and capable of being arranged flat and of a size not larger than the declaration. When, owing to the mode of applying or affixing the mark to the goods or to the manner of its use on the goods, such specimens cannot be furnished, suitable photographs or other acceptable reproductions, not larger than the declaration, which clearly and legibly show the mark and all matter used in connection therewith, shall be furnished. In the case of marks for services, specimens or facsimiles, as specified above, of the mark as used in the sale or advertising of the services shall be furnished unless impossible because of the nature of the mark or the manner in which it is used, in which event some other acceptable reproductions shall be furnished.

(e) It shall depend on the national law of each Contracting State whether any declaration to the same effect as but worded differently than in paragraph (a) shall produce the same effect.

Rule 27

Declarations Concerning Earlier National or Madrid Registrations

27.1 *Separately Filed Declarations*

(a) Any separately filed declaration under Article 21(2) shall:

(i) specify the designated State or States in respect of which it is made,
(ii) contain the statement that the owner of the international registration owned a national registration or national registrations in the said State or States on the international registration date or the international later designation date, as the case may be,
(iii) indicate, in respect of each such national registration, its number,
(iv) indicate the international registration number of the international registration to which it relates.

(b) Any separately filed declaration under Article 22(2) shall:

(i) specify the designated State or States in respect of which it is made,
(ii) contain the statement that the owner of the international registration owned a registration under the Madrid Agreement in respect of the said State or States on the international registration date or the international later designation date, as the case may be,
(iii) indicate the number of the relevant Madrid registration,
(iv) indicate the international registration number of the international registration to which it relates.

27.2 *Certification of National Registrations*

The certification of the copy of any national registration referred to in Article 21(2) shall be in the English or French language, shall be signed by a person authorized by the national Office to effect certifications and shall indicate the date to which the certification refers. That date shall be the international registration date or the international later designation date, as the case may be, or, where the certification is made before international registration or recording of the later designation is effected, the date on which the certification is effected. In the latter case, the national Office effecting the certification shall, on the request of the International Bureau presented once the said registration or recording is effected by it, indicate to that Bureau any change which might have occurred in respect of the national registration between the date to which the certification referred and the international registration date or the recording date of the later designation, as the case may be.

27.3 *Defects*

(a) The International Bureau shall promptly notify the applicant or the owner of the international registration of any defect in the declaration made under Article 21(2) or Article 22(2), including the absence of the certified copy referred to in Article 21(2) and any defect in the certification thereof as provided in Rule 27.2.

(b) As long as any defect referred to in paragraph (a) is not corrected, the International Bureau shall treat the declaration as if it had not been made.

27.4 *Publication; Notification*

(a) Unless effected by virtue of Rule 18.1(a)(ix) or Rule 18.2(a)(i), the publication of any declaration under Article 21(2) or Article 22(2) shall indicate:

(i) the fact that the publication relates to a declaration made under Article 21(2) or 22(2), as the case may be,
(ii) the State or States in respect of which the declaration was made and the numbers of the relevant national or Madrid registrations,
(iii) the international registration number of the international registration to which the declaration relates,
(iv) the name of the owner of the international registration.

(b) Unless effected by virtue of Rule 19.1, the notification of any declaration under Article 21(2) or 22(2) shall consist of an indication that the declaration made under Article 21(2) or 22(2), as the case may be, was recorded by the International Bureau and shall be accompanied by a copy of the declaration.

Rule 28

Transmittal of Documents to the International Bureau

28.1 *Place and Mode of Transmittal*

(a) International applications, requests, demands, notifications and any other documents intended for filing, notification or other communication to the International Bureau shall be deposited with the competent service of that Bureau during the office hours fixed in the Administrative Instructions, or mailed to that Bureau.

(b) Where any document is transmitted to the International Bureau in response to an invitation by that Bureau

bearing a reference number, the document shall indicate such reference number.

(c) Where paragraph (b) does not apply, any document transmitted to the International Bureau shall:

(i) where it relates to an international application, be accompanied by a copy of such application,

(ii) where it relates to an international registration, indicate, by its international registration number, the international registration to which it relates; it may also contain an indication of the mark as provided for in Rule 20.1(b).

(d) Paragraph (c) shall not apply in those cases where these Regulations contain specific provisions on the identification of the international application or registration to which any document transmitted to the International Bureau relates.

28.2 *Date of Receipt of Documents*

Any document received by the International Bureau through deposit or mail shall be considered to have been received on the day on which it is actually received by that Bureau, provided that, when it is actually received after office hours, or on a day when the Bureau is closed for business, it shall be considered to have been received on the next subsequent day on which the Bureau is open for business.

Rule 29

Signature

29.1 Legal Entity

(a) Where any document submitted to the International Bureau is signed by a legal entity, the name of the legal entity shall be indicated in the place reserved for signature and shall be accompanied by the signature of the natural person or persons entitled to sign for such legal entity according to the national law of the State under whose law the legal entity was established.

(b) Paragraph (a) shall apply, *mutatis mutandis*, to partnership or firms composed of attorneys or patent or trademark agents but which are not legal entities.

29.2 *Exemption from Certification*

No signature provided for under the Treaty or these Regulations shall require authentication, legalization or other certification.

Rule 30

Calendar; Computation of Time Limits

30.1 *Calendar*

The International Bureau, national Offices, applicants and owners of international registrations shall, for the purposes of the Treaty and these Regulations, express any date in terms of the Christian era and the Gregorian calendar.

30.2 *Periods Expressed in Years, Months, or Days*

(a) When a period is expressed as one year or a certain number of years, computation shall start on the day following the day on which the relevant event occurred, and the period shall expire in the relevant subsequent year in the month having the same name and on the day having the same number as the month and the day on which the said event occurred, provided that if the relevant subsequent month has no day with the same number the period shall expire on the last day of that month.

(b) When a period is expressed as one month or a certain number of months, computation shall start on the day following the day on which the relevant event occurred, and the period shall expire in the relevant subsequent month on the day which has the same number as the day on which the said event occurred, provided that if the relevant subsequent month has no day with the same number the period shall expire on the last day of that month.

(c) When a period is expressed as a certain number of days, computation shall start on the day following the day on which the relevant occurred, and the period shall expire on the day on which the last day of the count has been reached.

30.3 *Local Dates*

(a) The date which is taken into consideration as the starting date of the computation of any period shall be the date which prevails in the locality at the time when the relevant event occurred.

(b) The date on which any period expires shall be the date which prevails in the locality in which the required document is filed or the required fee is paid.

30.4 *Expiration on a Non-Working Day*

If the expiration of any period during which any document or fee must reach the International Bureau or any of its agenices falls on a day on which such Bureau or agency is not open for business, or on which ordinary mail is not delivered in Geneva or the locality in which the agency is situated, the period shall expire on the next subsequent day on which neither of the said two circumstances obtains.

Rule 31

Payment of Fees

31.1 *Payment to the International Bureau*

All fees due under the Treaty and these Regulations shall be payable to the International Bureau.

31.2 *Applicable Fee Schedule*

The fees payable shall be:

(i) where they concern an international application or a request for the recording of a later designation, the fees in force on the date the international application or the request for the recording of the later designation is received by the International Bureau or, where the application or request has been filed through the intermediary of a national Office under Article 5(3), on the date on which it was received by that Office,

(ii) where they concern a demand for renewal, the fees in force on the date which precedes by 6 months the starting date of the term of renewal.

31.3 *Currency*

(a) Subject to paragraph (b), all fees due under the Treaty and these Regulations shall be payable in Swiss currency.

(b) Where the International Bureau has agencies, the Administrative Instructions may, under specified conditions, allow exceptions to paragraph (a).

31.4 *Deposit Accounts*

(a) Any natural person or legal entity may open a deposit account with the International Bureau or any or its agencies.

(b) The details concerning deposit accounts shall be provided in the Administrative Instructions.

31.5 *Indication of the Mode of Payment*

(a) Unless the payment is made in cash to the cashier of the International Bureau, the international application, and any request, demand, or other document, filed with the International Bureau in connection with any international registration, subject to the payment of any fee, shall indicate:

(i) the name and address, as provided in Rule 5.2(a) and (c), of the natural person or legal entity making the payment, unless the payment is made by a cheque attached to the document,

(ii) the mode of payment, which may be by an authorization to debit the amount of the fee to the deposit account of such person or entity, or by transfer to a bank account or to the postal cheque account of the International Bureau, or by cheque. The Administra-

tive Instructions shall provide the details, in particular those governing the kind of cheques that shall be accepted in payment.

(b) Where the payment is made pursuant to an authorization to debit the amount of the fee to a deposit account, the authorization shall specify the transaction to which it relates unless there is a general authorization to debit to a specified deposit account any fee concerning a certain applicant, owner of an international registration, or duly appointed representative.

(c) Where the payment is made by transfer to a bank account or to the postal cheque account of the International Bureau, or by a cheque not attached to the international application, request, demand, or other document, the notification of the transfer or the cheque (or paper accompanying it) shall identify the transaction to which the payment relates, in the manner to be provided for in the Administrative Instructions.

31.6 *Effective Date of Payment*

Any payment shall be considered to have been received by the International Bureau on the date indicated hereinbelow:

(i) if the payment is made in cash to the cashier of the International Bureau, on the date on which such payment is made,

(ii) if the payment is made by debiting a deposit account with the International Bureau pursuant to a general authorization to debit, on the date on which the international application, the request for the recording of later designation, the demand for renewal or other document entailing the obligation to pay fees is received by the International Bureau, or in the case of a specific authorization to debit, on the date on which the specific authorization is recieved by the International Bureau,

(iii) if the payment is made by transfer to a bank account or to the postal cheque account of the International Bureau, on the date on which such account is credited,

(iv) if the payment is made by cheque, on the date on which the cheque is received by the International Bureau, provided that it is honored upon presentation to the bank on which the cheque is drawn.

Rule 32

Withdrawals and Renunciations

32.1 *Withdrawal of the International Application or Request for Recording of Later Designation*

(a) Any withdrawal of an international application shall be treated as such by the International Bureau if the communication of withdrawal reaches it before preparations for publication have been completed.

(b) Any withdrawal of a request for the recording of later designation shall be treated as such by the International Bureau if the communication of withdrawal reaches it before preparations for publication have been completed.

32.2 *Renunciation of the International Registration or of Certain Designations*

(a) The owner of the international registration may, at any time, renounce the international registration or the recording of the designation of any designated State.

(b) Renunciation of the recording of all designated States shall be treated as renunciation of the international registration.

32.3 *Procedure*

(a) Withdrawals and renunciations referred to in Rules 32.1 and 32.2 shall be effected in a written communication addressed to the International Bureau and signed by the applicant or the owner of the international registration, as the case may be. The International Bureau shall acknowledge receipt of this communication.

(b) In the case of any withdrawals, the International Bureau shall reimburse to the applicant or the owner of the international registration any State designation fee which it received from him in connection with any State affected by the withdrawal.

(c) The International Bureau shall record and publish renunciations, and shall notify interested designated Offices thereof. The details shall be provided in the Administrative Instructions.

Rule 33

33.1 *Choice Between Individual and Standard State Fees Initial Choice*

Any Contracting State shall choose between individual and standard State fees in a written declaration addressed to the International Bureau at the same time as it deposits its instrument of ratification or accession. If it chooses individual State fees, the declaration shall also indicate the amounts of those individual State fees in Swiss francs. The choice of the Contracting State shall become effective and the amounts indicated shall be applicable from the date on which such State becomes bound by the Treaty. Where the Contracting State fails to indicate its choice at the prescribed time, or where it chooses individual State fees but fails to indicate their amounts in Swiss francs, it shall be considered to have chosen standard States fees.

33.2 *Change in Choice*

Any Contracting State may at any time indicate, in a written declaration addressed to the International Bureau, that it wishes to choose standard State fees instead of individual State fees or vice versa, provided that, in the latter case, the declaration shall indicate also the amounts of the individual State fees. The change in choice shall apply from Jan. 1 of that calendar year which commences at the expiration fat least 6 months after the date on which the International Bureau received the declaration. If the desired change is for individual State fees but the declaration fails to indicate their amounts in Swiss francs, the declaration shall be treated as if it had not been made.

Rule 34

34.1 *Change in the Amounts of Individual State Fees Communication; Effective Date*

Any change in the amounts of individual State fees, expressed in Swiss francs, shall be communicated in writing by the interested national Office to the International Bureau. The amounts so communicated shall be applicable as from Jan. 1 of that calendar year which commences at the expiration of at least 6 months after the date on which the International Bureau receives the communication.

Rule 35

35.1 *State Fees Individual State Fees*

(a) The International Bureau shall in every calendar year transfer to any interested designated Office the fees referred to in Article 18(3)(d) that are collected in respect of international registrations, recordings of requests for later designations, and recordings of renewals, effected in the preceding calendar year.

(b) Further details shall be provided in the Administrative Instructions.

35.2 *Standard State Fees*

(a) The coefficient referred to in Article 18(4)(b) shall be:

(i) 2, if the national law provides only for examination of "absolute grounds of nullity,"

(ii) 3, if the national law provides for examination as to whether there is conflict with another mark ("relative grounds of nullity") and if such examination is carried

out only where there is third-party opposition,
(iii) 4, if the national law provides for examination of relative grounds of nullity ex officio and without third-party opposition,
(iv) 5, if the national law provides for examination of relative grounds of nullity ex officio followed by the possibility of third-party opposition.

(b) Further details shall be provided in the Administrative Instructions.

Rule 36

36.1 *Fees Belonging to the International Bureau*
Fees Belonging to the International Bureau

All fees and charges collected under the Treaty, these Regulations and the Administrative Instructions, except those referred to in Article 18(2), shall belong to the International Bureau.

Rule 37

Recordings Effected by National Offices

37.1 *Notification*

The notification by the national Office provided for in Article 20(1) shall be made on a form furnished by the International Bureau and the details of which are provided in the Administrative Instructions.

37.2 *Annotation and Publication*

The Administrative Instructions shall provide for the extent to which annotations of any changes notified under Article 20(2) shall be made in the International Register of Marks and shall be published by the International Bureau, provided that such annotation and such publication shall at least indicate the international registration number of the mark, the State which it concerns, the date on which it was received, and its subject matter.

Rule 38

38.1 *Changes in Addresses*
Recording and Publication

(a) The International Bureau shall, on request, record and publish, free of charge, any change in the address of the owner of the international registration or his representative.

(b) The request shall be signed.

Rule 39

39.1 *Recording and Publication Concerning Representatives Recording*

(a) Where a representative is appointed, the appointment shall be recorded.

(b) Where the appointment of a representative is revoked or renounced, the revocation or the renunciation shall be recorded.

39.2 *Publication*

(a) Where a representative is appointed, his appointment, including his name and address, shall be published.

(b) Where the appointment of a representative is revoked or renounced, the revocation or the renunciation shall be published unless, at the time the publication could be effected, the appointment of another representative is published.

Rule 40

40.1 *The Gazette*
Contents and Title of the Gazette

(a) All matters which, according to the Treaty or these Regulations, the International Bureau is obliged to publish shall be published in a periodical entitled "International Marks Gazette/*Gazette internationale des marques*".

(b) The Administrative Instructions may provide for the inclusion of other matters in the Gazette.

40.2 *Frequency of Issue of the Gazette*

The Gazette shall be issued once a week.

40.3 *Languages of the Gazette*

(a) The Gazette shall be issued in a bilingual (English and French) edition.

(b) The Administrative Instructions shall identify those portions which require translation and those portions which do not require translation.

(c) Matters which can be easily understood even if not translated (for example, the names of the designated States), or which are indicated by signs or abbreviations (for example, "Ren." for "Renewal/*Renouvellement*") to which the keys shall be published in eacfi issue, need not be translated. The details shall be provided in the Administrative Instructions.

(d) Matters not falling within the scope of paragraph (c) (for example, the lists of goods and/or services) shall always be published in both languages. The publication shall indicate which is the original language. Translations shall be prepared by the International Bureau. In case of any divergence between the original and the translation, all legal effects shall be governed by the original.

40.4 *Sale of the Gazette*

The subscription and other sale prices of the Gazette shall be fixed in the Administrative Instructions.

40.5 *Copies of the Gazette for National Offices*

(a) Before July 1 of each year each national Office shall notify the International Bureau of the number of copies of the Gazette which it wishes to receive in the next subsequent year.

(b) The International Bureau shall make the requested number of copies available to the national Office:
(i) free of charge, up to the same number as the number of units corresponding to the class chosen under the Paris Convention for the Protection of Industrial Property by the Contracting State of which the said Office is the national Office,
(ii) at half of the ordinary subscription or sale price, for copies in excess of the said number.

(c) Copies given free of charge or sold under paragraph (b) shall be for the internal use of the national Office which has requested them.

40.6 *Errors in Publications*

(a) Any error in the Gazette may be rectified by the International Bureau through publication of an appropriate corrigendum.

(b) Any national Office and any interested person may call any error in the Gazette to the attention of the International Bureau.

40.7 *Further Details*

Further details concerning the Gazette may be provided in the Administrative Instructions.

Rule 41

41.1 *Copies and Other Information Available to the Public*
Copies and Information Concerning International Applications and International Registrations

(a) Any person may obtain from the international Bureau, against payment of a fee whose amount shall be fixed in the Administrative Instructions, certified or uncertified copies or extracts of the international registration or of any document in the file of any international application or international registration. Each copy or extract shall reflect the situation of the international registration or of the file, or parts of such registration or file, on a specific date; such date shall be indicated in

the said copy or extract.

(b) On request and against payment of a fee whose amount shall be fixed in the Administrative Instructions, any person may obtain from the International Bureau oral or written information, or information by telecopier devices, on any fact appearing in any document in the file of any international application or international registration.

(c) Notwithstanding paragraphs (a) and (b), the Administrative Instructions may waive the obligation to pay any fee where the work or the expense connected with the furnishing of a copy, extract, or information is minimal.

Rule 42

42.1 *Regional Marks*
Declaration Under Article 25(1)(a)

(a) The declaration referred to in Article 25(1)(a) shall be in writing and shall be addressed to the International Bureau. It shall be effective as from the date or event specified in the declaration, provided that it shall not become effective prior to the expiration of 2 months from the receipt of the declaration by the International Bureau.

(b) The declaration shall be promptly published by the International Bureau.

42.2 *Fees*

Rules 9, 13, 25.3, 33 and 34 shall apply *mutatis mutandis*, in the case referred to in Article 25(2).

Rule 43

43.1 *Procedure Where Correction of Errors of the International Bureau is Sought Time Limit Under Article 30*

The time limit referred to in Article 30(1) shall be:

(i) where the alleged error may be discovered on the basis of a notification sent by the International Bureau to the applicant or the owner of the international registration, 2 months from the date of such notification,

(ii) where item (i) does not apply and the alleged error may be discovered on the basis of a publication of the International Bureau, 2 months from the date of such publication,

(iii) where neither item (i) nor item (ii) applies, the time limit provided for in the national law.

43.2 *Application of Rule 16*

Rule 16 shall apply, *mutatis mutandis*, in respect of Article 30.

RULES CONCERNING CHAPTER II

Rule 44

44.1 *Expenses of Delegations*
Expenses Borne by Governments

The expenses of each delegation participating in any session of the Assembly and in any committee, working group or other meeting dealing with matters of concern to the Union shall be borne by the Government which has appointed it.

Rule 45

45.1 *Absence of Quorum in the Assembly Voting by Correspondence*

(a) In the case provided for in Article 32(5)(b), the International Bureau shall communicate any decision of the Assembly (other than decisions relating to the Assembly's own procedure) to the Contracting States which were not represented when the decision was made and shall invite them to express in writing their vote or abstention within a period of 3 months from the date of the communication.

(b) If, at the expiration of the said period, the number of Contracting States having thus expressed their vote or abstention attains the number of Contracting States which was lacking for attaining the quorum when the decision was made, that decision shall take effect provided that at the same time the required majority still obtains.

Rule 46

46.1 *Administrative Instructions*
Establishment of Administrative Instructions; Matters Governed by Them

(a) The Director General shall establish Administrative Instructions. He may modify them. They shall deal with matters in respect of which these Regulations expressly refer to such Instructions and with details in respect of the application of these Regulations.

(b) Before establishing the Administrative Instruction and before modifying any provision thereof which affects national Offices, the Director General shall communicate to the interested Offices the text of the intended provisions and shall invite the said Offices to notify him of any observations they might wish to make.

(c) All forms of interest to applicants and owners of international registrations shall be included in the Administrative Instructions.

46.2 *Control by the Assembly*

The Assembly may invite the Director General to modify any provision of the Administrative Instructions, and the Director General shall proceed accordingly.

46.3 *Publication and Effective Date*

(a) The Administrative Instructions and any modification thereof shall be published in the Gazette.

(b) Each publication shall specify the date on which the published provisions become effective. The date need not be the same for all the provisions provided that no provision may be declared effective prior to the expiration of a period of one month after the publication date of that issue of the Gazette in which it was published.

46.4 *Conflict with the Treaty and the Regulations*

In the case of conflict between any provision of the Administrative Instructions and any provision of the Treaty or of these Regulations, the latter shall prevail.

ANNEX TO THE REGULATIONS

Table of Fees

The fees marked by an asterisk apply to the States which have chosen the standard State fee system (see Articles 18(2) and (4)). Where, either because of the choice exercised by the applicant or the owner of the international registration under Article 5(1)(a)(vi) or 6(2)(a)(v), or because only a regional mark is available, the designation of one or more States party to a regional treaty has the same effect as if an application for the registration of the mark in the regional register of marks had been filed, the fees marked by an asterisk shall be payable once even if the regional registration effect extends to more than one State party to the regional treaty.

	Kind of Fee	*Amount in Swiss francs*
1.	*Application*	
1.1	International Application Fee (Rule 9.1(a)(i)): irrespective of the number of designated States and of the numbers of classes	400
1.2	*Standard State Designation Fee (Rule 9.1(a)(ii): for each designated State to which the Standard Fee System applies . .	130
1.3	Color Reproduction Fee (Rule 9.1(a)(i)) . . .	100
2.	*Later Designation*	
2.1	International Later Designation Fee (Rule	

	13.1 (a)(i)): irrespective of the number of designated States and of the number of classes	100
2.2	*Standard State Designation Fee (Rule 13.1(a)(ii)): for each designated State to which the Standard Fee System applies	[1]30
2.3	Color Reproduction Fee (Rule 13.1(a)(ii)):	100
3.	*Change in Ownership*	
3.1	Request for Recording Change in Ownership Fee (Rule 22.1(g))	100
4.	*Change in the Name of the Owner—Request for Recording Change in the Name of the Owner (Rule 23.1(c)):*	
4.1	Where the request relates to one international registration	100
4.2	Where the request relates to more than one international registration	[2]50
5.	*Limitation of List of Goods and/or Services*	
5.1	Request for Recording of Limitation of the List of Goods and/or Services Fee (Rule 24.1(c))	100
6.	*Renewal*	
6.1	International Renewal Fee (Rule 25.3(a)(i)): irrespective of the number of designated States and of the number of classes	400
6.2	Renewal Surcharge (Rule 25.3(a)(i)): irrespective of the number of designated States and of the number of classes	200
6.3	*Standard State Renewal Fee (Rule 25.3(a)(ii)): for each designated State to which the Standard Fee System applies	[1]30
6.4	Color Reproduction Fee (Rule 25.3(a)(i))	100

[1] Multiplied by the number of classes.

[2] For each of the international registrations to which it relates.

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TRADEMARK REGISTRATION TREATY
Implementing Legislation

On September 3, 1975 the Trademark Registration Treaty (TRT), signed at Vienna, Austria, on June 12, 1973, was transmitted by the President to the Senate of the United States with a view to receiving its advice and consent to ratification. Legislation designed to implement the TRT has been prepared by the Patent and Trademark Office in the Department of Commerce.

Following a suggestion by the General Accounting Office, the Patent and Trademark Office is planning a survey of a random sample of United States trademark owners who would have a direct interest in the TRT and in the changes required in United States trademark law. In order to provide the interested public with the information on which the sampled companies will base their responses, the complete draft legislation, including Summary, Statement of Purpose and Need and Sectional Analysis is reproduced below. A copy of the survey questionnaire will be published in a future issue of the OFFICIAL GAZETTE.

The text of the TRT was reproduced in the OFFICIAL GAZETTE *of July 24, 1973. Some post conference documents, including a history of the Treaty, were reproduced in the* OFFICIAL GAZETTE *of Feb. 11, 1974. The report of the United States delegation to the Vienna Conference was reproduced in the* OFFICIAL GAZETTE *of Feb. 11, 1975. Additional copies of the material reproduced below as well as the previous* OFFICIAL GAZETTE *publications are available upon request to the Commissioner of Patents and Trademarks.*

DONALD W. BANNER,
Commissioner of Patents and Trademarks.

July 11, 1978.

SUMMARY

In 1973, the United States and thirteen other countries signed the Trademark Registration Treaty. This Treaty was transmitted to the Senate on September 3, 1975, with a view to advice and consent to receiving its ratification.

The Trademark Registration Treaty will establish an international trademark filing arrangement, through which persons and companies residing in one of the member States can more easily register trademarks (including service marks, and collective and certification marks) and maintain these property rights in all of the member States. Since the Treaty is not self-executing, the instrument of United States ratification will not be deposited until the necessary implementing legislation is enacted.

The proposed implementing legislation effects the necessary changes in the trademark statutes and provides to persons filing domestic applications the same benefits in the United States as those accorded under the Treaty. The implementing legislation would not come into force until the Treaty enters into force. Entry into force requires the deposit of instruments of ratification or accession by five States.

STATEMENT OF PURPOSE AND NEED

The enclosed bill would amend the Trademark Act of 1946 (60 Stat. 427, as Amended, 15 U.S.C. 1051 et seq.) to implement the Trademark Registration Treaty and make certain of its benefits available to persons filing national applications for United States trademark registration.

First, the bill would implement the Trademark Registration Treaty (TRT), an agreement adopted on June 12, 1973, by the Vienna Diplomatic Conference on Industrial Property to facilitate the protection of trademarks used or intended to be used in international commerce. This Treaty was signed by the United States and was transmitted by the President to the Senate of the United States on September 3, 1975, with a view to receiving its advice and consent to ratification.

Ratification of the Treaty and its implementation by this bill would enable United States nationals and residents to avail themselves of the advantages offered by the Treaty when it has entered into force with respect to the United States. In addition to the procedural implementing provisions, the bill would effect certain changes in the Trademark Act of 1946 (60 Stat. 427, as Amended, 15 U.S.C. 1051 et seq.) that are required to be made in order to comply with certain conditions and requirements of the Trademark Registration Treaty. These changes would not come into effect until the entry into force of the Treaty.

Second, the bill also makes modifications in the present law to provide to United States nationals and residents the same benefits when filing national applications for trademark registration in the United States Patent and Trademark Office as would be available to such applicants in the United States if filing under the Treaty.

Purpose of Trademark Registration Treaty

The Trademark Registration Treaty has as its primary purpose the establishment of a trademark filing arrangement through which persons and companies residing in one of the member States can more easily register trademarks (including service marks, and collective and certification marks) and maintain these property rights in all of the member States. Separate actions in approximately 150 jurisdictions (i.e. States, possessions, territories, etc.) are now required by United States companies in order to extend the protection of a trademark throughout the world. The complexity and high cost of establishing and protecting trademarks in international markets through the diverse national laws and procedures is a serious problem for businessmen seeking to further their commercial objectives by the sale of trademarked products across national boundaries. However, if trademark protection in potential foreign markets is not secured promptly, the unprotected mark is frequently appropriated by a "pirate" or may even be coincidentally adopted by another.

The entry into force of the Trademark Registration Treaty would help alleviate these problems by establishing an alternative international registration procedure through which the effects of national trademark registration in member countries could be secured, maintained and renewed on a central international register of marks. With a few exceptions, the effects of international registration in each participating State would remain subject to the substantive requirements of the national laws of such State.

History of Treaty Development

The Trademark Registration Treaty is the culmination of continuous efforts, since 1965, by the United States, to participate in an acceptable international arrangement to facilitate the protection of trademarks in international commerce. Consideration was first given to the possibility of United States adherence to the Madrid Agreement for the International Registration of Marks, a special arrangement under the Paris Convention for the Protection of Industrial Property. The Madrid Agreement, in force since 1891, has long operated successfully among twenty-three countries, principally European.

By 1968, it became apparent that there was substantial U.S. private sector opposition to adherence to the Madrid Agreement in its present form, largely because of certain of its features which, it was argued, would be contrary to the interests of United States firms.

From 1968 to 1970, there were efforts to revise the Madrid Agreement to correct these alleged deficiencies, but these efforts were not successful. However, whereas there was opposition to our adherence to the Madrid Agreement, interested private groups continued to urge United States participation in an acceptable trademark registration treaty.

In September, 1970, a United States sponsored resolution to develop a new trademark registration treaty was

adopted unanimously by the competent administrative organs of the Paris Convention. After several drafts and examinations by three Committees of Experts and several Consultants' groups, a final draft was considered at a diplomatic conference held in Vienna, Austria, from May 17 to June 12, 1973. Fifty States and thirty-one international organizations (governmental and non-governmental) were represented at the conference. On June 12, 1973, the Trademark Registration Treaty was signed by eight countries, including the United States, and remained open for signature until Dec. 31, 1973, by which date a total of fourteen countries had become signatories. The Treaty will enter into force six months after five States have deposited their instruments of ratification or accession. To date, none of the signatory States has ratified the Treaty. Four States (Congo, Gabon, Togo, and Upper Volta) have deposited instruments of accession.

Main Features of Treaty

The Trademark Registration Treaty will establish a multilateral trademark filing arrangement for residents or nationals of its member countries, which provides easier procedures for securing, administering and maintaining national trademark registration effects in other countries by filing a single international application, securing a single international registration and maintaining a record of such rights on a central international register. International registration amounts to central recording of a "bundle of national rights" rather than a separate property right.

With some exceptions (as noted below), the substantive aspects of rights are regulated by each member State according to its national law. The main features of the Treaty are as follows:

1. A national or resident of a member State may file directly with the International Bureau of the World Intellectual Property Organization an international application designating the States in which protection of the trademark is desired. Any number of States, including the applicant's home State, may be designated.

2. The international application may claim the priority (Paris Convention "right of priority") of an earlier first application to register the same trademark.

3. The application is subject to an international fee plus a fee for each designated State (not higher than 100% of the total fees for national registration).

4. After a brief examination as to formal requirements, the trademark is registered by the International Bureau. The details of the international registration are promptly published in English and French in an international gazette and communicated to each of the designated States.

5. Unless refused by a designated State, the international registration is accorded the same legal effect as if the same trademark were registered nationally in that State. The time limit for the initial notice of refusal, including all reasons or possible reasons for refusal, is fifteen months from the date of the international publication. The reasons for refusal cannot be different from those applicable to national applications.

6. If initially refused by any designated State, the owner is notified of the refusal and is guaranteed the same procedural rights of re-examination and/or remedies available in the case of refusals of national trademark applications. Further proceedings are not subject to any Treaty time limits, and are carried out directly between the owner and the concerned national office.

7. The effects of an international registration may be cancelled in any designated State according to the national law of that State. The effect of cancellation is limited to the State in which the legal action for cancellation was brought.

8. An international registration may be renewed at ten year intervals by a single renewal application filed with the International Bureau.

9. States not originally designated may be added later by requesting the recording of later designations of the new States.

10. Assignments, changes of name, limitations of the goods and/or services, etc. may be recorded by filing a single international request, with the same legal effect as if recorded in the national registers.

11. Non-use of the trademark during an initial period of three years counted from the filing date cannot result in refusal or cancellation by any State. However, any State may require that the owner declare his intention to use the trademark in that State and may further provide in its law that no action for infringement may be commenced until the continuing use of the trademark in that State has started and that any remedy (e.g. damages or profits) may relate only to the period after use has commenced.

The benefits of the Treaty will be available only to nationals or residents of member countries. As to such persons, the Treaty may be used to secure protection in a few countries, or in many, depending upon the extent of the commercial interests.

The Treaty provides that the contracting States shall constitute a Union for the international registration of marks. The provisions for administration of the Union are similar to those established for the Patent Cooperation Treaty, which was transmitted to the Senate on Sept. 12, 1972, and was favorably acted on by that body on Oct. 30, 1973.

The Regulations annexed to the Treaty provide rules concerning administrative requirements and procedures and details useful in implementation of the Articles.

Interest of Other Countries

In addition to the United States, the signatories of the TRT include a number of major trading countries (e.g. Federal Republic of Germany, United Kingdom, Italy, Sweden, Austria). Others are awaiting developments in the United States, which furnished primary impetus to the negotiations. In particular, the interest of most Western European countries is contingent upon United States ratification, primarily because of the existence of the Madrid Agreement. The Trademark Registration Treaty is more modern than the Madrid Agreement, has more advantages for trademark owners and eliminates features which have long inhibited the territorial growth of the Madrid system. However, the position of the Madrid Agreement members is dependent upon the interest of major countries outside that Union in the new arrangement. Of these, the United States is clearly the most important. However, Japan, United Kingdom, Canada, and the Scandinavian group are among other countries outside the Madrid Union which are known to be seriously considering participating in the TRT arrangement, or, failing that, in some other multilateral agreement, such as Madrid.

Main Advantages

The main advantages of the Treaty are the simplified procedures provided in order to secure national registration effects, to maintain the rights thereby acquired, and to continue these rights by renewal. Other benefits are the time limits for national refusal notifications and the limitations on national use requirements.

The Treaty will not be a panacea for all trademark problems. It will establish what is essentially a multilateral trademark filing arrangement, reserving (except for a few points) the substantive aspects of rights to regulation on a country-by-country basis under the national law of each country. However, by limiting participation to States having previously adhered to the Paris Convention for the Protection of Industrial Property, it assimilates or applies the norms and standards of trademark protection law which have been agreed to by the

eighty-seven member countries of that Union over the almost 100 years of its existence. The fact that its filing, maintenance and administrative procedures are independent of national procedures means that a framework for future development of international substantive standards and further rationalization of procedures is provided. Also, since trademark piracy is best dealt with preemptively by prompt filing and diligent maintenance practices, the Treaty attacks this problem directly by facilitating the filing and maintenance procedures.

Even the short range objectives and benefits will not be immediately realized upon United States ratification. Five States must ratify before the Treaty enters into force. To date, only eighteen out of the eighty-seven potential member States have taken positive steps (i.e. fourteen signatories and four adherents). The benefits of simplified filing and maintenance will accrue in proportion to the number of member States.

Effect on U.S. System—Cost

As the Treaty matures in terms of the number of participating States, one of its effects will probably be an increase of foreign origin filings in this country (present foreign origin filings are less than 10% of total filings). It is fundamental that the benefits of simplification accrue in both directions. To the extent that any increased filings reflect existing commercial rights, this result would be consistent with a fundamental purpose of the federal trademark registration system, i.e. the central recording of marks in which rights may exist. Because registration is not mandatory in order to secure rights in a trademark in the United States (and this would not change under the Treaty), the U.S. system is designed to encourage federal registration, in order to provide centralized information to those searching for and selecting new marks for new products or services to be sold in commerce. Part of the increase, as explained later, may result from permitting the filing and registration of marks based on an intent to use as an alternative to actual use.

Since the intent to use amendments to be effected by the bill will not come into force until the date of entry into force of the Treaty, none of the financial consequences will accrue until after that date. It is assumed that entry into force will occur promptly after United States ratification, if not before that date. Assuming action by the 95th Congress, increased incremental costs and manpower requirements of the Patent and Trademark Office have been estimated as shown in the following chart.

ESTIMATED COSTS INCURRED BY RATIFICATION OF TRT AND ENACTMENT OF RELATED LEGISLATION[1]

[Dollar Amounts in Thousands]

	FY 1979		Adjustment for FY 1980		Total FY 1980		Adjustment for FY 1981		Total FY 1981	
	M.Y.	Dollar	M.Y.	Dollar	M.Y.	Dollar	M.Y.	Dollar	M.Y.	Dollar
Operational printing[2]	....	581.9	.....	(+68.7)	....	650.6	.....	(+54.8)	....	705.4
Operational, other[3]	21.7	420.3	(+11.6)	(+252.6)	33.3	672.9	(+7.4)	(+176.1)	40.7	849.0
Start-up[4]	3.0	109.8	(−2.0)	(−73.4)	1.0	36.4	(−1.0)	(−31.5)	....	[5]4.9
	24.7	1,112.0	.....	.....	34.3	1,359.9	.....	.....	40.7	1,559.3

[1] These estimated costs will be partially offset by fees to the same extent as under our national system.

[2] Assumes additional publication of all applications will be required (see discussion of Sections 9 and 10 of bill in the Sectional Analysis).

[3] Includes supervisory, professional and clerical personnel, and mail.

[4] Includes Legislation and International staff, Organization and Systems, and all travel.

[5] Only travel remains.

An important caveat is that many of the assumptions on which the above estimates are based are, at this point, very speculative. Also, since the Treaty provides for the assessment of country designation fees (paid centrally) at a level equal to the fees for national registration, any increased operational costs of the Patent and Trademark Office due to increased filings will be offset to the same extent as under the national system. The above cost estimate does not reflect these partially offsetting fees.

Additional cost factors, too remote for attempting to estimate at this time, involve contributions to the World Intellectual Property Organization (WIPO) which will serve as the International Bureau under the Treaty. Article 34(5) of the Treaty establishes a working capital fund, constituted by a single payment made by each contracting State. Based on the experience in the case of other treaties administered by WIPO, it is believed that consideration of any working capital fund would be deferred, at least, until several years after the Treaty enters into force. The amount of the initial payment of each contracting State to this fund is computed with due regard to the number of international applications which are filed by residents of that State. Thus, a direct relationship exists between the amount of the payment by the United States and the use of the TRT by U.S. companies.

In starting up for operations under the TRT, the International Bureau will have to establish a budget financed from fees and charges for services rendered by the International Bureau, from sales of publications and other miscellaneous income. While the Madrid Agreement, also administered by WIPO, has operated at a profit for many years, and the TRT is designed to be self-supporting under normal circumstances (Article 34(4)), the possibility of deficits cannot be ruled out altogether. Deficits would be covered out of the working capital fund, which fund would then be reimbursed by the States. Deficits are not expected to be of any significant magnitude. Contributions to the working capital fund would be the responsibility of the Department of State.

Effect on U.S. Trademark Law

Participation in the international system will require that our national trademark law be amended in a number of respects. The most fundamental change is one which would permit the securing of a national registration in the United States based on intention to use the trademark applied for, and provide for an initial period of 3 years during which nonuse of the mark could not be a basis for refusing or cancelling such registration. Consistent with the Treaty, the proposed legislation provides that infringement actions in the courts would continue to be contingent upon the commencement of use, however.

As explained by the President in forwarding the Treaty to the Senate for its advice and consent, there is a sharp difference of opinion among interested persons, firms and associations in the United States as to the de-

sirability of making this change, and, to a lesser extent, other less significant changes, required by the Treaty, in our national law.

The essence of the change in United States law is that it would move us from the strict use approach (today held to only by the United States, and a few other countries, e.g. Republic of Philippines, Panama) to the middle position, i.e. a use or intention to use system similar in principle to that of the British. The change is believed to be more consistent with the legitimate needs of businessmen, especially where international trade is contemplated.

Intention To Use Legislation

In fact, legislation permitting the filing of a trademark application based on an intent to use was widely supported in the private sector and, in the 91st Congress, identical House and Senate bills, substantially the same as the earlier Senate bills, were introduced at the request of the Administration (S. 3110, McClellan; H.R. 14050 Kastenmeier). This legislation was not reintroduced in the 93rd and 94th Congresses, however, since it was known at an early stage in the Treaty negotiations that the use requirements of the United States would be affected.

The support of intention to use legislation in the United States had its foundation in domestic concerns. Under present law actual use of a mark is a prerequisite to the filing of an application for registration. Thus, every applicant for federal registration, in addition to other requirements, must specify in his application the date of first use of the mark and the date of first use in commerce over which Congress has control (usually interstate commerce).

As applied to the adoption of new trademarks, the requirement of establishing use of a mark prior to applying for its registration is unrealistic since the time interval between clearance and adoption of a trademark and use of commercial quantities varies from several months to several years depending upon the products involved. Typically, before a consumer product is marketed commercially, there is considerable time and effort expended in the developmental effects. After having undertaken the effort and expense of creating and planning the promotion of a new mark, however, the businessman may find that the mark is not registrable because of conflict with another mark or some other reason. These problems led to the drafting and introduction of intent to use legislation.

Canada, in 1954, after careful study, adopted a system permitting applications for registration on the basis of an owner's proposed use. The Canadian system is favorably regarded by businessmen, as are the intention to use systems of many other nations. Approximately one-half of the trademark applications filed today in Canada are based on proposed use, rather than actual use, evidencing the usefulness and acceptability of the system.

Differences Between Previous Intention To Use Legislation and the Treaty

Although similar in terms of their substantive effect, the "intent to use" amendments previously proposed in this country do not satisfy the requirements of the Treaty. There are two basic differences:

(1) The time period under the Treaty during which use may not be required cannot be less than 3 years, counted from the filing date.

Under the "intent to use" bills, the time period was flexible, depending upon the length of time consumed by the examination, i.e. 90 days, counted from the date of allowance of the application by the examiner (a shorter period if the application were opposed). Although entirely dependent upon pendency experience of the Patent and Trademark Office, the period of permitted non-use of most of the applied for marks under those bills would have been in the approximate range of one to two years, counted from the filing date.

Whereas the Treaty permits the "reserving" of a mark for an initial 3 years, more entended "reserving" may be precluded under Article 19(3) and this is done in the proposed implementing legislation. Thus, the 3 year period cannot be extended except for extraordinary reasons. The fact that an application is still pending at the date of expiration of the 3 years may *not* be accepted as a reason for extension. The use requirements after 3 years are the same as under present law.

(2) Under the Treaty, the national *registration* effect of an international registration may not, for the initial three year period, be refused or cancelled on the ground of non-use. However, any country may provide that the right to sue for infringement of the registered mark (even during the three years) is subject to the condition of use, i.e. no right to sue until after continuous use has commenced; and that any remedy may relate only to the period after use has commenced.

Under the "intent to use" bills, an application could be filed, and priority secured, based on intent to use, without actual use, but the *registration* would not issue until a declaration demonstrating actual use had been filed and accepted.

The implementing legislation takes into account the above differences, as the Treaty requires. Also, in all respects, the benefits to applicants from the 3 year use moratorium are accorded to United States residents filing regular nationals applications in the United States as well as to those applicants filing under the Treaty.

A BILL

To amend the Act entitled "An Act to provide for the registration and protection of trademarks used in commerce, to carry out the provisions of international conventions, and for other purposes," approved July 5, 1946, as amended.

Be it enacted by the Senate and the House of Representatives of the United States of America in Congress assembled, that, in order to carry out the provisions of the Trademark Registration Treaty and extend its benefits to citizens and residents of the United States pursuant to the authority of Congress to regulate commerce within its control, section 1 of the Act entitled "An Act to provide for the registration and protection of trademarks used in commerce, to carry out the provisions of international conventions, and for other purposes," approved July 5, 1946 (60 Stat. 427), as amended, is amended to read as follows:

"(a) Any person who is the owner of a trademark which is used or intended to be used in commerce may register that trademark on the principal register hereby established, subject to the conditions and requirements of this Act.

"(b) Application by a person described in section 1(a) to register a trademark on the principal register may be made:

(1) By paying in the Patent and Trademark Office the filing fee and filing in such Office—

(A) A written application, in such form as may be prescribed by the Commissioner, signed by the applicant or by a duly appointed representative of the applicant, specifying the applicant's domicile and citizenship and the particular goods in connection with which the trademark is used or intended to be used in commerce;

(B) A drawing of the trademark;

(C) Except where the declaration under section 1(c) is filed together with the application, a declaration of the applicant's intention to use the trademark in commerce in connection with the goods specified in the application;

and by complying with such rules or regulations, not inconsistent with law, as may be prescribed by the Commissioner; or

(2) By designating the United States in an international registration, or in the recording of any later designation in an international registration, published and notified to the Patent and Trademark Office in conformity with the Trademark Registration Treaty: *Provided, That—*

(A) the person applying was entitled to file international applications, is entitled to own international registrations, and is the Owner of the international registration of the trademark sought to be registered under this Act; and

(B) a declaration of such person's intention to use the trademark in commerce in connection with the goods specified in the international registration is notified to the Patent and Trademark Office in conformity with the said Treaty.

"A person whose international application, or request for the recording of later designation, designating the United States, has been declined by the International Bureau may apply to register the same trademark under paragraph (1) of this subsection. If the application under paragraph (1) is filed in the Patent and Trademark Office prior to the expiration of two months, counted from the date of the notification by the International Bureau of its declining of the corresponding international application or request, and if the Commissioner determines that such declining was not justified, the application shall be treated as if it had been filed on the date which would have been the international registration date or the recording date of the later designation had the declining not taken place.

"(c)(1) The applicant of an application for registration under this Act, or the registrant of a registration issued on the basis of such application, shall file in the Patent and Trademark Office, in such form as may be prescribed by the Commissioner, a declaration stating that the trademark is in use in commerce and that such use commenced on or prior to the date of expiration of three years counted from the filing date of the application, and specifying the date of his first use of the trademark, the date of his first use of the trademark in commerce, those of the particular goods identified in the registration, or, if the registration has not been issued, in the application for registration, in connection with which the trademark is used, and the mode or manner in which the trademark is used in connection with such goods. The declaration shall be signed by the registrant or his duly appointed representative, or, if the registration has not been issued, by the applicant or his duly appointed representative, and it shall be accompanied by such number of specimens or facsimiles of the trademark as actually used as may be prescribed by the Commissioner. Where the declaration concerns an application filed under, or registration issued pursuant to, section 1(b)(2), it may, in such form as may be prescribed by the Commissioner or in the form prescribed by the Trademark Registration Treaty, be filed with the International Bureau, with the same effect as if it had been filed in the Patent and Trademark Office on the date on which it was received by the International Bureau.

(2) The declaration under paragraph (1) of this subsection may be filed together with the application to which it pertains, or later: *Provided,* That unless such declaration has been filed prior to the expiration of four years, counted from the filing date, the Commissioner shall cancel the registration, if issued, or refuse the application for registration, if pending. If the declaration is accepted in respect of fewer than all of the goods stated in the registration or identified in the application, the application or registration shall be limited by the Commissioner to those of the particular goods specified in the declaration in connection with which the mark is in use in commerce.

(3) If an application for registration is pending after the expiration of the three-year period referred to in paragraph (1) of this subsection, or if a registration is relied upon in an opposition or cancellation proceeding under this Act which was filed, or which is pending, after the expiration of such period, the Commissioner may require that the declaration under this subsection in respect of such application or registration be filed within such earlier period as he may prescribe: *Provided,* That such earlier period shall not expire earlier than 2 months, counted from the date of a notice mailed to the applicant or registrant.

(4) If a person who applied for registration of a trademark under this Act, or any successor, assignee or related company of such applicant, shall subsequently apply for registration under this Act of the same or a substantially equivalent trademark on or prior to the date of expiration of five years from the filing date of the said earlier application in respect of all or fewer than all of the goods recited in the said earlier application, the three-year period referred to in paragraph (1) of this subsection shall, in respect of those of the goods which are the same, be counted from the filing date of the said earlier application, or if there were more than one such earlier application, from the filing date of the earliest of them: *Provided,* That this paragraph shall not be applicable if a declaration of use conforming to the requirements of this subsection is filed together with the said subsequently filed application.

(5) Upon a satisfactory showing by the applicant or registrant that his failure to commence use of the mark in commerce on or prior to the date of expiration of the three-year period referred to in paragraph (1) of this subsection was due to extraordinary circumstances which excuse such failure and was not due to any intention to abandon the mark, the Commissioner may extend the date of expiration of the said period and of the time limit for filing the declaration under this subsection: *Provided,* That the said expiration dates may not be extended for the reason that the application for registration was pending after the date of expiration of the said three-year period.

(6) The Commissioner shall notify the applicant or registrant who files the above prescribed declaration of his acceptance or refusal thereof and, if a refusal, the reasons therefor.

"(d) In any application in respect of which the declaration under section 1(c) has been filed, the applicant may claim concurrent use. If concurrent use is claimed, the applicant shall state exceptions to his claim of exclusive use, in which he shall specify, to the extent of his knowledge, any concurrent use by others, the goods in connection with which and the areas in which each concurrent use exists, the periods of each use, and the goods and area for which the applicant desires registration.

"(e) If the applicant is not domiciled in the United States he shall designate by a written document filed in the Patent and Trademark Office the name and address of some person resident in the United States on whom may be served notices or process in proceedings affecting the trademark. Such notices or process may be served upon the person so designated by leaving with him or mailing to him a copy thereof at the address specified in the last designation so filed. Unless filed with the application, the document designating such person shall be filed on or prior to the date on which the applicant, or the registrant of any registration issued on the basis of such application, replies to any communication by the examiner, or otherwise institutes or defends any proceeding under this Act, relating to such application or registration. Until such person has been designated, or if the person so designated cannot be found at the address given in the last designation, such notices or process may be served upon the Commissioner."

Sec. 2 The first sentence of section 3 of such Act is amended by striking out "used in commerce".

Sec. 3 The first sentence of section 4 of such Act is amended by striking out "used in commerce" and by inserting, following "exercising", the words "or intending to exercise".

Sec. 4 Section 5 of such Act is amended by inserting, following "used" (first occurrence), the words, "or is intended to be used,"; and by inserting, following "use" (both occurrences), the words "or intention to use".

Sec. 5(a) The second sentence of section 7(a) of such Act is amended by inserting, following "date" (third occurrence), the words "of issue"; by striking out "date on which the application for registration was received in the Patent and Trademark Office" and inserting in lieu thereof the words "filing date"; and by changing the period at the end of the sentence to a colon and adding the following proviso:

"*Provided*, That if the declaration under section 1(c) has not been filed, this fact shall be indicated in lieu of the dates of first use of the mark."

(b) A new sentence is added to section 7(a) of such Act reading as follows: "The Commissioner shall cause a notice concerning the issuance of the registration to be published in the Official Gazette of the Patent and Trademark Office."

(c) Section 7(b) of such Act is amended to read as follows:

"Subject to any conditions and limitations stated therein, a certificate of registration of a mark upon the principal register provided by this Act shall be prima facie evidence of the validity of the registration, of the registrant's ownership of the mark, and of the right of the registrant to prevent registration under this Act by any other person, except a lawful concurrent user, of the mark either in the identical form as reproduced in the registration, or in such near resemblance thereto as to be likely, when applied to the goods or services of such other person, to cause confusion or to cause mistake, or to deceive."

(d) Section 7(d) of such Act is amended by inserting, preceding the first sentence of such subsection, "(1)" and by adding, at the end thereof, the following new paragraphs:

"(2) The registrant of any registration under this Act may limit the goods and/or services specified in his registration by filing an application, in such form as may be prescribed by the Commissioner, for the recording of such limitation or, in the case of a registration issued on the basis of an application under section 1(b)(2), or renewed pursuant to section 9(b)(2), by filing at the International Bureau a request for the recording of a limitation, in respect of the United States, of the goods and/or services of the international registration on the basis of which such registration was issued. The Commissioner shall refuse to record any limitation requested by the registrant if its effect would be to enlarge the scope of the goods and/or services beyond that of the goods and/or services specified in the registration. The recording by the International Bureau of a limitation of the goods and/or services, in respect of the United States, of an international registration shall, unless refused by the Commissioner, have the same effect as if such limitation had been entered in the records of the Patent and Trademark Office on the same date of such recording."

"(3) Where the Commissioner has limited the goods and/or services of any registration pursuant to the provisions of paragraph (2) of this subsection, or sections 1(c)(2), 8(a)(2), or 9(c)(2) of this Act, appropriate entry of such limitation shall be made in the records of the Patent and Trademark Office and, if requested by the registrant, upon the certificate of registration or, if such copy is lost or destroyed, upon a certified copy thereof."

(e) Section 7 of such Act is amended by adding, after subsection 7(g), the following new subsection:

"(h)(1) Appropriate entry shall be made in the records of the Patent and Trademark Office of any recording notified to it by the International Bureau in respect of a registration issued on the basis of an application under section 1(b)(2), or renewed pursuant to section 9(b)(2), unless the effect of such recording has been refused in conformity with the provisions of this Act or of the Trademark Registration Treaty.

(2) The Commissioner shall notify the International Bureau as provided in the Trademark Registration Treaty before making any entry, other than as specified in paragraph (1) of this subsection, in the records of the Patent and Trademark Office in respect of a registration issued on the basis of an application under section 1(b)(2), or renewed pursuant to section 9(b)(2), and the entry in such records shall not be made until the corresponding entry has been annotated and published by the International Bureau as provided in the said Treaty."

Sec. 6 Section 8(a) of such Act is amended to read as follows:

"(1) The initial term of a registration under this Act shall be 10 years counted from the filing date:

Provided, That the registration of any mark under the provisions of this Act shall be cancelled by the Commissioner at the end of 6 years counted from its date of issue, unless, within 1 year next preceding the expiration of such 6 year period, the registrant shall file in the Patent and Trademark Office, in such form as may be prescribed by the Commissioner, an affidavit or declaration showing that the mark is still in use in commerce. Special notice of the requirement for such affidavit or declaration shall be attached to each certificate of registration. Where the affidavit or declaration concerns a registration issued pursuant to section 1(b)(2), it may, in the form prescribed herein, or in the form prescribed by the Trademark Registration Treaty, be filed with the International Bureau, with the same effect as if it had been filed in the Patent and Trademark Office on the same date as the date on which it was received by the International Bureau.

(2) If the affidavit or declaration of use under paragraph (1) of this subsection is accepted in respect of fewer than all of the goods and/or services stated in the registration, the registration shall be limited by the Commissioner to those of the particular goods and/or services specified in the affidavit or declaration in connection with which the mark is still in use in commerce.

(3) Upon a satisfactory showing by the registrant that his nonuse of the mark in commerce is due to special circumstances which excuse such nonuse and is not due to any intention to abandon the mark, the Commissioner may extend the time for filing the affidavit or declaration under this section."

Sec. 7 Section 9 of such Act is amended to read as follows:

"(a) The owner of a mark which is still in use in commerce may renew his registration of that mark for periods of ten years from the end of each expiring period of the registration, subject to the conditions and requirements of this Act.

"(b) Renewal of a registration by a person described in section 9(a) may be effected:

(1) By paying in the Patent and Trademark Office the prescribed fee and filing in such Office—

(A) within the six months next preceding the date of expiration of the period for which the registration was issued or renewed, an application for renewal: or

(B) prior to the expiration of six months counted from the date of expiration of the period for which the registration was issued or renewed, an applica-

tion for late renewal, on payment of the additional fee herein prescribed;

and by complying with such rules or regulations, not inconsistent with law, as may be prescribed by the Commissioner; or

(2) By the renewal of an international registration in respect of which the United States is a designated State, published and notified to the Patent and Trademark Office in conformity with the Trademark Registration Treaty, *Provided:* That the person applying is entitled to own international registrations and is the Owner of the international registration of the mark sought to be renewed under this Act.

If the Commissioner refuses an application for renewal of a registration filed under paragraph (1), he shall notify the registrant of his refusal and the reasons therefor. The provisions of section 1(e) shall be applicable to any person not domiciled in the United States who applies for or effects the renewal of a registration under this Act.

"(c)(1) The registrant of a registration renewed under this Act shall file in the Patent and Trademark Office, in such form as may be prescribed by the Commissioner, a declaration stating that the mark is still in use in commerce, and specifying those of the particular goods and/or services identified in the registration on or in connection with which the mark is so used. The declaration shall be signed by the registrant or by his duly appointed representative, and shall be accompanied by a specimen or facsimile showing current use of the mark. Where the renewal is effected pursuant to section 9(b)(2), the declaration may, in the form prescribed herein, or in the form prescribed by the Trademark Registration Treaty, be filed with the International Bureau, with the same effect as if it had been filed in the Patent and Trademark Office on the date on which it was received by the International Bureau.

(2) The declaration under paragraph (1) of this subsection may be filed together with the application for renewal under section 9(b)(1), or, in the case of a renewal effected pursuant to section 9(b)(2), with the demand for renewal of the corresponding international registration filed with the International Bureau, or later: *Provided,* That unless such declaration has been filed prior to the expiration of six months, counted from the starting date of the term of renewal, the Commissioner shall cancel the registration. If the declaration is accepted in respect of fewer than all of the goods and/or services stated in the registration, the registration shall be limited by the Commissioner to those of the particular goods specified in the declaration in connection with which the mark is still in use in commerce.

(3) Upon a satisfactory showing by the registrant that his nonuse of the mark in commerce is due to special circumstances which excuse such nonuse and is not due to any intention to abandon the mark, the Commissioner may extend the time for filing the declaration under this section.

(4) The Commissioner shall notify the registrant who files the above prescribed declaration of his acceptance or refusal thereof and, if a refusal, the reasons therefor."

Sec. 8(a) Section 10 of such Act is amended by inserting, preceding the first sentence of such section, "(a)(1)", by striking out "(d)" in the last sentence and inserting in lieu thereof "(e)", and by adding at the end of such section the following new paragraphs:

"(2) A change in the ownership of a registration or application for registration under this Act may be recorded in the Patent and Trademark Office in such form as may be prescribed by the Commissioner, or, in the case of an application filed or registration issued pursuant to section 1(b)(2), or renewed pursuant to section 9(b)(2), by recording the change in Ownership, in respect of the United States, of the international registration on the basis of which such application was filed or such registration was issued. The recording by the International Bureau of a change in the Ownership, in respect of the United States, of an international registration shall, if valid, have the same effect as if such change had been entered in the records of the Patent and Trademark Office on the same date as the date of such international recording.

"(3) The recording of a change in ownership pursuant to paragraph (2) which is the result of an assignment of the registered or applied for mark shall, as of the date of such recording, be accorded the same effects as those which are accorded to the recording of such assignment: *Provided,* That within three months from the date of notice of such recording, mailed to the person who applied therefor, or, where the recording is effected by the International Bureau, from the date of publication of such international recording, instruments of assignment conforming to the requirements of paragraph (1) have been recorded in the Patent and Trademark Office.

"(4) Any person, not entitled to file international applications, who has, nevertheless, become the owner of an application filed or registration issued pursuant to section 1(b)(2), or renewed pursuant to section 9(b)(2), other than as a result of a contract between him and the previous applicant or registrant, may file an application for registration of the same mark under section 1(b)(1). If the application under section 1(b)(1) is filed by such person in the Patent and Trademark Office within two years from the said change in ownership and prior to six months after the expiration of the initial term, or of the then running term of renewal, of the international registration on which such application or registration is based, it shall, in respect of those of the goods and/or services which are the same, be treated as if it had been filed on the same date as the date on which the designation of the United States in such corresponding international registration took effect: *Provided,* That such application under section 1(b)(1) conforms to all of the requirements of this Act."

(b) Section 10 of such Act is amended by adding the following subsections:

"(b) Instruments evidencing changes in the name of the applicant or registrant may be recorded in the Patent and Trademark Office, in such form as may be prescribed by the Commissioner, or, in the case of a registration issued on the basis of an application filed under section 1(b)(2), or renewed pursuant to section 9(b)(2), by recording the change in the name of the Owner of the international registration on the basis of which such registration was issued. The recording by the International Bureau of a change in the name of the Owner of an international registration, in which the United States is a designated State, shall, if valid, have the same effect as if it had been entered in the records of the Patent and Trademark Office on the same date as the date of such recording.

"(c) Where at any time, as a result of a final decision in any proceeding under this Act, it is determined that a recording made under this section is void or that such recording was made contrary to the requirements of the Act, the Commissioner shall, upon request of any interested party, cause an appropriate correction to be entered in the records of the Patent and Trademark Office. If such recording was effected on the basis of a recording in respect of an international registration, the Commissioner shall, if appropriate, deny the effect of such international recording and notify the International Bureau accordingly, as prescribed in the Trademark Registration Treaty."

Sec. 9 Section 12(a) of such Act is amended to read as follows:

"Upon the filing of an application for registration, the

Commissioner shall refer the application to the examiner in charge of the registration of marks, who shall cause an examination to be made. Unless the application has been previously withdrawn or abandoned, the mark shall be published in the OFFICIAL GAZETTE of the Patent and Trademark Office at such time as the Commissioner shall prescribe, not later than 12 months, counted from the filing date of the application. In the case of an applicant claiming concurrent use, or in the case of an application to be placed in an interference as provided for in section 16 of this Act, the mark may be published subject to the determination of the rights of the parties to such proceedings."

Sec. 10 Section 12(b) of such Act is amended by striking out "6" in two places and inserting, in lieu thereof "3" and by adding at the end thereof:

"Except for the failure of an applicant to comply with the requirements of section 1(c), no mark shall be refused registration for a reason which has not been indicated in a communication given or mailed to the applicant on or prior to 12 months, counted from the filing date: *Provided*, That this limitation shall not apply to any refusal determined by the Trademark Trial and Appeal Board or by a court."

Sec. 11 The second sentence of section 13 of such Act is amended by changing the period at the end of this sentence to a colon and adding a proviso and a new third sentence reading as follows:

"*Provided*, That such time shall in no event be extended to a date which is later than 14 months, counted from the filing date of the application for registration in respect of which the extension of time for filing opposition is requested. An opposition may be filed by a duly authorized attorney of the opposer."

Sec. 12 Section 14 of such Act is amended by inserting, following "person" the words, "or by a duly authorized attorney of any person"; by inserting, following "date" in clause (a), the words "of issue", and by inserting, following "thereunder" , in clause (c), the following words:

"or, in the case of a registration issued on the basis of an application under section 1(b)(2), or renewed pursuant to section 9(b)(2), on the ground that the registrant was not entitled to own international registrations,".

Sec. 13 The first sentence of section 15 of such Act is amended by inserting, following the third occurrence of "date", the words "of issue".

Sec. 14 The first sentence of section 16 of such Act is amended by inserting, following "may" the words, "prior to the publication under section 12(a) of such mark,".

Sec. 15 Section 17 of such Act is amended by inserting, between the first and second sentences thereof:

"Where an interference, opposition to registration or concurrent user proceeding concerns an application for registration under this Act of a mark, the entitlement to registration of which has not been finally determined by the examiner in charge of the registration of marks or, as a result of an appeal from a final refusal of the examiner, by the Trademark Trial and Appeal Board or a court, the Commissioner may, with notice to all parties, defer the commencement of such proceeding until such final determination has been made."

Sec. 16 The first sentence of paragraph (1) of section 21(a) of such Act is amended by inserting, following "affidavit", the words "or declaration"; and by striking out "section 8" and inserting in lieu thereof "section 8. 1(c). or 9(c)".

Sec. 17 Section 22 of such Act is amended by inserting, at the beginning of the sentence, "Issuance of a" and by changing the "R" in "Registration" to "r".

Sec. 18 Section 23 of such Act is amended by inserting, following "commerce" in the second sentence of such section, "or are intended to be used in commerce,"; by striking out in the second sentence of such section "for the year preceding the filing of the application"; by inserting between the second and third sentences of such section: "An application for the registration of a mark shall be treated as an application under this section only if the application or, in the case of an application pursuant to section 1(b)(2), if the international registration or recording of later designation which is the basis for such application, contains an indication to this effect."; and by striking out in its entirety the last sentence of such section.

Sec. 19(a) The second sentence of section 24 of such Act is amended by inserting, preceding "may," the words, "or his duly authorized attorney," and by striking out the word "verified".

(b) The fourth sentence of section 24 of such Act is amended by inserting, following "used", the words, "following the date of expiration of the period referred to in section 1(c)(1),".

Sec. 20 The second sentence of section 30 of such Act is amended to read as follows:

"When the goods and/or services specified in an application fall within a plurality of classes, a fee equalling the sum of the fees for filing an application in each class shall be paid, and the Commissioner may issue a single certificate of registration for such mark."

Sec. 21(a) Subsection (a) of section 31 of such Act is amended by striking out paragraph (3) of such subsection, by appropriately renumbering the remaining paragraphs; and by inserting, following "mark" in newly renumbered clause (6) (old paragraph (7)), "change in the name of the registrant,".

(b) Section 31 of such Act is amended by adding, after subsection 31(c), the following new subsection:

"(d) The fees specified in paragraphs (1) and (2) of subsection (a) shall, in the case of applications pursuant to section 1(b)(2) and renewals pursuant to section 9(b)(2), be deemed to be substituted for, respectively, by the individual State fees and the individual State renewal fees applicable to designations of and renewals concerning the United States pursuant to the Trademark Registration Treaty. The Commissioner shall communicate to the International Bureau the amounts of such individual State fee and individual State renewal fee and such amounts shall be the same, respectively, as the amounts of the fees specified in paragraphs (1) and (2) of subsection (a)."

Sec. 22 Section 32(1) of such Act is amended by adding at the end of such section the following sentence:

"No action under this section may be started by the registrant of a registration issued under this Act until the declaration under section 1(c) in respect of the mark which is the subject of such registration has been filed in the Patent and Trademark Office and accepted by the Commissioner."

Sec. 23(a) Section 33(a) of such Act is amended by inserting following "registration" (second occurrence), the words, "and in respect of which the mark is stated to be in use in commerce in the registration, or in the declaration under section 1(c) which has been filed in the Patent and Trademark Office and accepted by the Commissioner,"

(b) Paragraph (5) of section 33(b) of such Act is amended by inserting, preceding "registration" the words "the date of issue of the".

(c) Section 33 of such Act is amended by adding, after subsection 33(b), a new subsection reading as follows:

"(c) For the purpose of determining priority of rights in any proceeding under this Act, an application for registration of a mark which has not been withdrawn or abandoned or a registration issued on the basis of such application, shall, from and after its filing date, be accorded the same effect as if the applicant, or the registrant, had commenced use of the mark in commerce on the said filing date, without derogation, however, of any earlier priority based on use of the

mark commenced earlier than the said filing date or of any right of priority to which the applicant of registrant may be entitled pursuant to second 44(d) of this Act."

Sec. 24 Section 35 of such Act is amended by adding at the end of such section the following sentence:

"Any remedy under this section shall relate only to the period after the registrant commenced the continuing use of the mark in commerce."

Sec. 25 Section 44(a) of such Act is amended by inserting, preceding the first sentence of such subsection, "(1)" and by adding, at the end thereof, the following new paragraphs:

"(2) The Commissioner shall keep a register of international registrations designating the United States which have been published and notified to the Patent and Trademark Office in conformity with the Trademark Registration Treaty, including renewals thereof and recordings related thereto, and shall be authorized to accord and refuse effects, communicate notifications, make attestations, decide petitions, determine the amounts of and receive payments of fees, and perform all other acts prescribed by the said Treaty, subject to the requirements thereof.

"(3) Where the time limit for a notification to the International Bureau prescribed by the Trademark Registration Treaty is stated in terms of the date of receipt of such notification by the International Bureau, such notification shall be transmitted by Registered Mail no later than 14 days prior to the expiration of the time limit and, except where an agency of the said Bureau, established pursuant to the said Treaty, is operating within the United States, shall be transmitted to that bureau via Air Mail.

"(4) A mark subject of an application under section 1(b)(2) in respect of which no notification of refusal or possible refusal was received by the International Bureau within the time limit fixed in Article 12(2)(a)(i) of the Trademark Registration Treaty shall be automatically entitled to registration under this Act on the same register as the one for which such application was made. Upon request by the applicant of such an application and unless the registration has been previously issued, the Commissioner shall issue the registration to which such applicant is entitled under this paragraph and the date of issue of such registration shall be the date of the OFFICIAL GAZETTE next preceding the date of expiration of the said time limit. Registration of a mark under the provisions of this paragraph shall be without prejudice to the right of any person to petition to cancel such registration under section 14 of this Act for any reason, including one which was referred to in a refusal made pursuant to section 12(b) or in an opposition filed pursuant to section 13, the notification of which was not received by the International Bureau or which was not received by such Bureau within the said time limit. If a registration is issued pursuant to this paragraph in respect of a mark, the registration of which had been opposed in a timely filed opposition, the Commissioner shall notify the opposer in such opposition and shall, upon request of such opposer received within 30 days from the date of such notice, direct the Trademark Trial and Appeal Board to determine and decide the rights of registration as if the opposition to registration had been filed as an application to cancel the said registration on the date of issue of such registration.

"(5) Failure by the applicant of an international application or by the Owner of an international registration to act within prescribed time limits in connection with requirements pertaining to an international application, international registration or later designation designating the United States, or to any recording related thereto, may be excused upon a showing satisfactory to the Commissioner of unavoidable delay, to the extent not precluded by the Trademark Registration Treaty or by this Act."

Sec. 26 Section 44(c) of such Act is amended by striking out the first sentence of such section; and by striking out the heading, preceding the second sentence, "Country of origin defined."

Sec. 27 Section 44(d) of such Act is amended to read as follows:

"An application for registration of a mark under sections 1, 2, 3, 4 or 23 of this Act filed by a person described in paragraph (b) of this section who has previously duly filed an application for registration of the same mark in one of the countries described in paragraph (b), or a regular international application in respect of the same mark designating at least one country other than the United States, shall be accorded the same force and effect as would be accorded to the same application if filed under this Act on the same date on which such application was first filed in such foreign country, or on which such international application was first filed with the International Bureau: *Provided,* That—

(1) The application under this Act is filed within 6 months from the date on which the application was first filed in the foreign country or on which the international application was first filed with the International Bureau;

(2) The rights acquired by third parties before the date of the filing of the first application in the foreign country or of the first international application shall in no way be affected by a registration obtained on an application filed under this subsection (d);

(3) Nothing in this subsection (d) shall entitle the owner of a registration granted under this section to sue for acts committed prior to the date on which such registrant has commenced the continuing use of the mark in commerce.

In like manner and subject to the same conditions and requirements, the right provided in this section may be based upon a subsequent regularly filed foreign application or subsequent regular international application, instead of the first filed foreign application: *Provided,* That any foreign application or international application filed prior to such subsequent application or international application has been withdrawn, abandoned, or otherwise disposed of, without having been laid open to public inspection and without leaving any rights outstanding, and has not served, nor thereafter shall serve, as a basis for claiming a right of priority."

Sec. 28(a) The paragraphs headed "Trademark," "Service Mark," "Certification Mark," "Collective Mark" and "Intent of Act" in section 45 of such Act are amended by inserting, following each occurrence of "used", the words "or intended to be used".

(b) Clause (a) of the paragraph in section 45 of such Act headed "Abandonment of Mark" is amended to read as follows:

"(a) when its use has not commenced and there is no intent to commence use or when its use has been discontinued with intent not to resume. Lack of intent to commence or intent not to resume may be inferred from the circumstances. If use of a mark has been discontinued, its nonuse for two consecutive years shall be prima facie abandonment."

(c) Section 45 of such Act is amended by adding the following paragraphs:

"*Filing date.* The filing date of an application for registration under section 1(b)(1) shall be the date on which all of the elements prescribed by the Commissioner as minimum elements for according a filing date have been received in the Patent and Trademark Office. The filing date of an application for registration under section 1(b)(2) shall be the same date as the international registration date of the international registration or, if applicable, the recording date of the later designation, on the basis of which such application is filed."

"Date of issue. The date of issue of a registration under this Act is the date of the issue of OFFICIAL GAZETTE of the Patent and Trademark Office in which the notice concerning the issuance of the registration appears."

"Trademark Registration Treaty. The term "Trademark Registration Treaty" means the Treaty so entitled, done at Vienna, Austria, on June 12, 1973, including the Regulations under the said Treaty."

"International application, international registration, request for the recording of later designation, recording of later designation, International Bureau, regular international application, individual State fee, individual State renewal fee. The terms "international application", "international registration", "request for the recording of later designation", "recording of later designation", "International Bureau", "regular international application", "individual State fee" and "individual State renewal fee" are to be taken in the sense indicated by the Trademark Registration Treaty."

"Owner, Ownership. The terms "Owner" and "Ownership" are to be taken in the sense indicated by the Trademark Registration Treaty where they appear in this Act in capitalized form."

"Owner of a trademark. The term "owner of a trademark" means a person who is using, or who has an intention to use, a trademark in commerce: *Provided,* That no other person, except a lawful concurrent user, has the right to use, and is using or has previously declared, in an application filed under this Act which has not been withdrawn or abandoned, his intention to use, such mark in commerce either in the identical form thereof or in such near resemblance thereto as to be likely, when applied to the goods of such other person, to cause confusion, or to cause mistake, or to deceive."

Sec. 29(a) This Act shall come into force on the same date as the entry into force of the Trademark Registration Treaty with respect to the United States. It shall apply to applications for registration of marks filed in the Patent and Trademark Office on or after such date, even though entitled to an earlier effective filing date, and to registrations issued on the basis of such applications; to international applications and later designations designating the United States filed with the International Bureau on or after such date, even though entitled to an earlier effective filing date, and to international registrations accorded effects in the United States on the basis of such international applications and later designations; and to proceedings under the Trademark Act of 1946, as amended, commenced on or after such date.

(b) Except as otherwise hereafter provided, applications for registration of marks on file in the Patent and Trademark Office on the date this Act comes into force, registrations issued on the basis of such applications, and proceedings under the Trademark Act of 1946, as amended, which are pending on such date, shall be governed by the provisions of the Trademark Act of 1946, as amended, in effect immediately prior to such date.

(c) Except as otherwise provided hereafter in this section, all registrations under the Trademark Act of 1946, as amended, or under the previous Acts specified in section 46(b) of such Act, existing on the date this Act comes into force shall be governed by the Trademark Act of 1946, as amended, in effect immediately prior to such date.

(d) The provisions of section 9 of the Trademark Act of 1946, as amended, as amended by this Act, shall apply to all registrations under such Act and under the previous Acts specified in section 46(b), whether issued or applied for before, on, or after the date this Act comes into force: *Provided,* that the amendments to such section by this Act shall not apply to the renewal of any registration for any period which started on a date which is earlier than six months after such date.

(e) The amendment by this Act, of the Trademark Act of 1946, as amended, shall not affect any rights or liabilities existing under such Act in effect immediately prior to the date this Act comes into force.

SECTIONAL ANALYSIS

Section 1 of the bill amends section 1 of the Trademark Act of 1946, as amended (hereinafter referred to as Trademark Act)[1] in a number of respects. The preamble makes it clear that the commerce clause as well as the treaty power is invoked to support the amendments. Section 1 of the amended Trademark Act is divided into five subsections, each of which is separately discussed below:

Section 1(a) *Entitlement to registration of a trademark.* Entitlement to registration is changed from present law in one fundamental respect. This is that intention to use, as well as actual use of, a trademark is a valid basis for ownership and registration. The other conditions are essentially the same as under present law.

The applicant must be a "person", as defined in section 45. The definition of "person" has not been changed.

As under the present statute, the applicant must be the "owner" of the trademark sought to be registered. The concept of ownership is modified as necessary to be consistent with the new alternative basis of rights. Also, rather than being part of the verified statement, the definition of "owner of a trademark" is in section 45.

The term "owner" is defined, as under present law, in respect of the absence of a superior right in any other person. What is new is that a claim of ownership is defeated not only by the superior right of a prior *user* of the same of a similar mark but also by the superior right of one who has a prior *intention to use* such a mark. However, the latter right can defeat the claim of ownership *only* it the intention to use has been previously declared in an application filed under the Act which has not been withdrawn or abandoned. Accordingly, while a person acquires (absent a superior right) an ownership right by reason of his intention to use a trademark, the right in that case is inchoate and is accorded no protection under the statute and no priority until it has been fixed in an application filed under the Act in which the intention to use is declared. Thus, filing the application is critical to a claim of ownership by intention to use and except, of course, where the Paris Convention "right of priority" (i.e. section 44(d)) is invoked, the filing date is the earliest date on which such a person can rely in a priority contest. (See Section 23(c)).

Finally, the use or intended use must be in commerce. The definition of "commerce" is not changed. The outside parameters of "intended use in commerce" are left to interpretation just as has been the case with "use in commerce" under the present statute, and the principles that would be applied in such interpretation are essentially the same.

Section 1(b) *Procedure for applying to register a trademark.* Under the amended Act, there are two basic procedures for securing the registration of a trademark, i.e. by filing an application in the Patent and Trademark Office (section 1(b)(1)) and by designating the United States in an international registration pursuant to the

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[1] Public Law 489, 79th Congress, approved July 5, 1946; 60 Stat. 427. Amendments have been effected by the following public laws.

P.L. 710, 81st Cong., 64 Stat. 459, 8-17-50.
P.L. 593, 82nd Cong., 66 Stat. 792, 7-19-52.
P.L. 609, 85th Cong., 72 Stat. 540, 8-8-58.
P.L. 333, 87th Cong., 75 Stat. 748, 10-3-61.
P.L. 772, 87th Cong., 76 Stat. 769, 10-9-62.
P.L. 89-83, 89th Cong., 79 Stat. 260, 7-24-65.
P.L. 93-596, 93rd Cong., 88 Stat. 1949, 1-2-75.
P.L. 93-600, 93rd Cong., 88 Stat. 1955, 1-2-75.

Trademark Registration Treaty[2] (section 1(b)(2)). Except for the place where the application is filed and the fee is paid, the substantive requirements applicable to the alternative procedures are essentially the same.

Section 1(b)(1) *Domestic procedure.* In order to achieve harmonization of domestic and international procedures, the following changes are made in the national application procedures.

1. The application may be signed by a representative, duly appointed by the applicant, as an alternative to signing by the applicant himself. The same benefit is provided to applicants filing under the Trademark Registration Treaty (Article 26).

2. Consistent with the requirements of the Trademark Registration Treaty and modern practice in regard to the filing of statements with federal agencies the verification of ownership requirement has been eliminated.

Of course, the criminal provisions of 18 U.S.C. 1001 would remain applicable to a statement made in a trademark application irrespective of whether such statement is verified.

3. The applicant need not allege use of the mark in his application. The Trademark Registration Treaty prohibits such a requirement (Article 19(3)(a)) for the owners of international registrations; consequently, the same benefit is accorded to persons filing regular national applications. Substituted for this requirement is the declaration of intention to use the mark in commerce, which *is* permitted by the Treaty (Article 19(4)). Consistent with this change, specimens or facsimiles of the mark as actually used need not be submitted with the application.

It should be noted that required allegations and exhibits relating to actual use according to the present statute are retained in section 1(c). It should also be noted here that the applicant *may* file the section 1(c) declaration together with his application (section 1(c)(2)), if the mark is already in use in commerce. In such case, the declaration of intention to use is obviously superfluous and need not be made.

Section 1(b)(2) *International procedure.*

This paragraph states the requirements which must be satisfied in order to secure the effect of a United States application, i.e. the effect required by the Trademark Registration Treaty (Article 11(1)).

The provisions of Article 19(4) of the Treaty, requiring a declaration of intention to use, are also implemented, corresponding to the same requirement in section 1(b)(1)(C) for domestic applicants.

Finally, a special requirement as to entitlement of a foreign applicant to use the Trademark Registration Treaty (Article 4) has been added since the International Bureau will only examine this question formally, leaving it to the designated States to examine it as to substance. Thus, non-entitlement of a foreign applicant to use the Treaty procedure is a ground for refusal (Article 12(1)(ii)) or cancellation (Article 13(1)(ii)) in addition to the grounds applicable under the national law.

The final two sections of section 1(b) implement part of Article 9 of the Treaty whereunder the improper declining of an international application or later designation request by the International Bureau can be rectified by filing a regular domestic application within 2 months from the notice of the declining.

Section 1(c) *Declaration of use.*

Section 1(c) calls for a declaration of use showing that use of the mark commenced on or prior to the date of expiration of three years, counted from the filing date.

Paragraph (1) requires the declaration to contain essentially the same information as that required by present section 1.

Paragraph (2) prescribes a time limit of four years, counted from the filing date, within which the declaration may be filed, and indicates the consequences of failure to file an acceptable declaration.

Paragraph (3) authorizes the Commissioner to require the earlier filing of a declaration when important relative to an issue in any Office proceeding, provided that the three-year period has expired.

Paragraph (4) prevents abuse of the intention to use provisions by a person filing successive applications for the same, or a substantially equivalent, mark by providing that, unless there is a gap of at least two years between the expiration of the nonuse moratorium of the earlier case and the date of filing of the later case, the three-year period in the later case is measured from the filing date of the earlier case. Any subsequent application which is accompanied by a declaration of use is excluded from the special provisions.

Paragraph (5) provides for an extension of the time limits when due to extraordinary circumstances nonuse is excusable. The proviso expressly states, however, that the mere pendency of the application for registration as of the expiration of the three-year period shall not justify an extension, making it clear that Article 19(3)(b) of the Trademark Registration Treaty does not apply in the United States.

Paragraph (6) requires the Commissioner to give notice regarding acceptance or refusal of a declaration.

Section 1(d) *Special requirement for concurrent use applications.*

This provision, unchanged from present law, is placed in a separate subsection because its applicability is limited to applications wherein the section 1(c) declaration of use has been filed.

Section 1(e) *Special requirement for applicants not domiciled in United States.*

This subsection requires all applicants not domiciled in the United States to designate an agent for service on or prior to the institution or defense of a proceeding under this Act. Before a local agent for service has been designated, service may be made upon the Commissioner.

Sections 2 and 3 of the bill amend sections 3 and 4 of the Trademark Act so that service marks and collective and certification marks may be registered based on either use or intention to use.

Section 4 of the bill amends section 5 of the Trademark Act to provide that the intended use by a related company inures to the benefit of the registrant or applicant.

Section 5(a) of the bill amends section 7(a) of the Trademark Act to take into account the fact that registrations issued on the basis of intent applications would not, if the declaration of use has not been filed, contain any data concerning use of the mark. In such cases, the fact that the declaration has not been filed would be indicated in the registration in lieu of the indications as to use. Also, the term "date of the registration" has been deleted, the significant dates under the amended statute being the "filing date" and the "date of issue."

Section 5(b) amends section 7(a) by requiring a notice of registration to be published in the OFFICIAL GAZETTE in support of the definition of "date of issue" in section 45.

Section 5(c) amends section 7(b) of the Trademark Act by deleting the presumption of the registrant's exclusive right to use the registered mark in commerce on the goods specified in the registration. One reason is that this presumption in the present statute is repeated in section 33(a).

The other reason is that this presumption, as it pertains to infringement actions, must be limited to be consistent with the limitation on the right even to file an infringement action prior to the commencement of use (see Section 23(a)).

Deletion of the "exclusive right to use" presumption from section 7(b) leaves a gap in the statute, however,

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[2] Done at Vienna, Austria, June 12, 1973. This is the Treaty which was transmitted by the President to the Senate for advice and consent to ratification on Sept. 3, 1975. *Congressional Record Sept. 3, 1975, S. 15139.*

the bringing of Patent and Trademark Office proceedings, i.e. oppositions and cancellations is not subject to the above mentioned limitation. The exclusive right to use presumption has served in such proceedings as the basis of the ruling that a registrant is entitled to rely solely upon his registration on the principal register as prima facie evidence of his right to exclude any other person from securing a registration under the Act of a confusing mark. Therefore, a presumption as to this right has been added.

Section 5(d) of the bill amends section 7(d) by adding two new paragraphs which provided domestic and international procedures, consistent with present law and with the Treaty, for amending a registration in respect of the specification of goods and/or services.

Section 5(e) of the bill amends section 7 by adding a new subsection, section 7(h), providing for appropriate notification, consistent with Article 20 of the Treaty, with respect to entries concerning registration based on international registrations.

Section 6 of the bill amends section 8(a) of the Trademark Act by changing the term of a registration from 20 to 10 years and the date from which the terms is measured from the registration date to the filing date. These changes correspond the term of domestic registrations to that of registrations secured under the Trademark Registration Treaty. The shorter term also facilitates the clearing from the register of unused marks.

The section is also amended to require that the use declared in the affidavit or declaration set forth in the proviso, i.e. the present section 8 affidavit, be use "in commerce".

Finally, the section is amended to permit, consistent with the requirement in the Treaty (Article 19(3)(d)), that such affidavit or declaration requirements be capable of being fulfilled in the case of an international registration by filing with the International Bureau.

Section 7 of the bill amends section 9 of the Trademark Act to set forth domestic and international procedures for renewal and to provide equivalent treatment, as to substantive requirements, of international and domestic registrants. Thus, as in the case of an application for registration, the renewal application may be signed by a representative, duly appointed by the registrant.

Two changes are made in the statute which conform to the Treaty, as follows:

1. The term of renewal is 10 years rather than 20, consistent with the Treaty (Article 17).
2. The time period, counted from the expiration date of the expiring term, in which a late renewal application can be filed is increased from three months to six months, corresponding to Article 17(3)(a).

Section 9(e) requires a declaration of use which requirement is applicable to all renewed registrations. Other than the three additional months in which to declare use of the mark, the only difference from present law is that the consequence of failure to satisfy the requirement is cancellation of the registration rather than refusal to renew.

Section 8(a) of the bill amends section 10 of the Trademark Act in several minor respects. Except for a technical change, the present provision for recording of assignments (section 10) is not changed.

Three new paragraphs have been added to the assignment section. The first two of these (i.e. 10(a)(2) and 10(a)(3)) implement Article 14 of the Treaty, under which a change in the ownership of an international registration may be recorded, by adding equivalent procedures to the national law. Thus, any applicant or registrant may record the fact that a new person has become the owner of an application filed or registration issued under the Act by complying with certain basic formalities. Paragraph (3) provides that if this step is taken within the period specified in paragraph (1) and it is followed up by the recording of instruments of assignment conforming to the requirements of paragraph (1), the constructive notice effect of recording an assignment in the Office will accrue.

The third additional paragraph (i.e. 10(a)(4)) is a special provision, implementing Article 14(5), for the benefit of one who, although not entitled to file under the Treaty, becomes the owner of an international registration by operation of law (e.g. by inheritance). Such a person may, subject to special requirements, rectify this defect by filing a regular national application.

Section 8(b) of the bill amends section 10 of the Trademark Act by adding two new provisions. The first of these (Section 10(b)) adds a new procedure, consistent with Article 15 of the Treaty, for recording a change in the name of the registrant.

Subsection (c) is added to clarify the procedure where a recording is void. Recordings under subsections (a) and (b) may later be determined to be void or contrary to law in another proceeding (cancellation, infringement action, etc.) under the Act. A specific provision has been added to clarify the fact that the Commissioner has the authority to correct the records and to provide a basis for denial of any international recording which formed the basis of the national entry.

Section 9 of the bill amends section 12(a) of the Trademark Act to provide for a "cut off" in the length of the ex parte examination of twelve months counted from the filing date of the application. Under amended section 12(a) all applications, the examination of which has not been completed, would have to be published for opposition purposes no later than 12 months from the filing date.

The reason for 12 months as the "cut off" is that the time required to effect publiction, to receive oppositions (including delays in processing oppositions received on the last day), and to communicate, in the case of international registrations, all grounds of refusal or possible refusal to the International Bureau, must be taken into account in order to meet the deadlines prescribed by the Treaty (see Article 12).

It should be noted that the exact schedule for publication is left to determination by the Commissioner. There are, at least, two possibilities: (1) publication, promptly after filing, of all applications; and (2) publication (of allowed cases) after completion of the ex parte examination (as at present), or (of all still pending cases) at the expiration of 12 months, whichever event is the earlier to occur.

Section 10 of the bill amends section 12(b) of the Trademark Act by reducing the period of time in which to reply to an Office communication concerning the application from six to three months and by providing a time limitation applicable to notifying the applicant of grounds raised during the ex parte examination. The reduction of response time should make it possible for the Office to complete the ex parte examinaion of most applications within the 12 months period of amended section 12(a).

The cut off is the same as the one in amended section 12(a), i.e. 12 months, counted from the filing date. The examination need not be completed within the 12 months as the Treaty requirement is only that all grounds be communicated within that period. Also, the limitation would not apply to a new ground of refusal based on a decision of the Trademark Trail and Appeal Board or of a court.

Section 11 of the bill amends section 13 of the Trademark Act by providing for a time limit of 14 months for receiving oppositions. The 14 month time limitation ties in with the amendment to section 12(a) of the Act, providing equivalence of treatment of domestic and Treaty applicants. Section 13 is also amended to provide that an attorney may file an opposition on behalf of the opposer.

Section 12 of the bill amends section 14 of the Trademark Act in two respects, conforming this section to amended section 13, and a minor change in terminology ("date of issue").

Section 13 of the bill amends section 15 of the Trademark Act by a minor change in terminology ("date of issue").

Section 14 of the bill amends section 16 of the Trademark Act by providing specifically that an interference may be declared as to any particular application for registration of a mark only prior to the publication for opposition of that mark. While this is no different than current practice, the change in the statute seemed desirable. Since the declaration of an interference would constitute a ground of possible refusal under the Trademark Registration Treaty, such ground would have to be notified to the International Bureau within the prescribed time limit. By requiring the declaration of the interferences prior to the date of publication, the section is subject to the same time limitation as in amended section 12(a), i.e. 12 months from the filing date.

Section 15 of the bill amends section 17 of the Trademark Act by providing discretionary authority to the Commissioner to defer the commencement of certain inter partes proceedings where the ex parte examination of a concerned application is not complete.

Section 16 of the bill amends section 21 of the Trademark Act by providing for an appeal from a refusal to accept a declaration pursuant to sections 1(c) and 9(c), as is now provided in the case of refusal of a section 8 affidavit.

Section 17 of the bill makes a language change in section 22 of the Trademark Act, consistent with the change from "date of registration" to "date of issue". Thus, constructive notice begins with publications of issuance of the registration (date of issue), no different in substance than under present law.

Section 18 of the bill amends section 23 of the Trademark Act by eliminating the requirements and provisions relating to use in the first and fourth paragraphs. Also, provision is made for treatment of applications as being under this section only where the application or the international registration (or recording of later designation) so indicates. The specific reference implements Article 11(3) which requires this treatment in the case of international registrations.

Section 19(a) of the bill amends section 24 of the Trademark Act by deleting the requirement that a petition to cancel a registration on the Supplemental Register be verified (consistent with amended section 14).

Section 19(b) of the bill amends section 24 of the Trademark Act by limiting the authority to cancel a registration on the Supplemental Register for nonuse, consistent with the use moratorium of the Treaty.

Section 20 of the bill amends section 30 of the Trademark Act in minor respects to remove an incidental reference to use of a mark that is inconsistent with amended section 1.

Section 21(a) of the bill amends section 31 of the Trademark Act by deleting the requirement of a fee for the filing of a section 8 affidavit. Since a section 8 fee cannot be assessed against a registration issued on the basis of an international registration (Article 19(1)), it is deleted in order to provide equivalence between domestic and Treaty applicants as to fees payable to the United States.

Section 21(b) of the bill amends section 31 of the Trademark Act by adding new subsection (d) whereby the filing and renewal fees are deemed to be substituted for by the corresponding fees set forth in the Treaty, where the international procedure is followed. This provision also obligates the Commissioner to fix the Treaty fees at the same amounts as the national fees.

Section 22 of the bill amends section 32(1) of the Trademark Act by providing that no infringement action may be started under the Act until the declaration of use of the mark in commerce has been filed in the Patent and Trademark Office and accepted by the Commissioner. This change implements the last sentence of Article 19(3)(a). Examination of the declaration could be accelerated if the registrant faced an impending infringement situation.

Section 23(a) of the bill amends section 33(a) of the Trademark Act so that the presumption of exclusive right to use the mark would apply as a rule of evidence only as to those goods and/or services in respect of which the mark is stated to be in use in commerce either in the registration itself or in the declaration under section 1(c).

Section 23(b) makes some minor changes in the language of section 33(b).

Section 23(c) amends section 33 of the Trademark Act by adding a new subsection (c) to define priority of rights accorded to applications or registrations based on an intention to use the mark. Under new subsection (c), the priority of an intent applicant or registrant would be *the same as if* he had commenced use of the mark in commerce on the filing date, unless, of course, he had an earlier priority based on use or based on the Paris Convention priority provisions of section 44(d) of the Act.

Section 24 of the bill amends section 35 of the Trademark Act in order to implement the last sentence of Article 19(3)(a) so that the remedies of profits and damages cannot date back prior to the date of commencement of use.

Section 25 of the bill renumbers present section 44(a) of the Trademark Act as section 44(a)(1) and adds to it some special provisions relating to the Trademark Registration Treaty.

Paragraph (2) authorizes the Commissioner to keep a register of international registrations designating the United States.

Paragraph (2) also contains a broad implementing provision, authorizing the Commissioner to take various actions prescribed by the Treaty. While all of the essential Treaty provisions parallel to provisions concerning domestic applications and registrations have been specifically implemented, a large number of Treaty provisions remain which solely concern the international procedures.

Paragraph (3) prescribes a precedure for communicating notifications where the deadline is stated in terms of the date of receipt by the International Bureau, most importantly the notification of refusal or possible refusal under Article 12(2)(a)(i).

Paragraph (4) implements Article 11(2)(i) of the Treaty providing for automatic registration as of the date of expiration of the time limit fixed in Article 12(2)(a)(i) where no notification of refusal or possible refusal has been received by the International Bureau.

Pargraph (5) implements Article 29 of the Treaty whereby certain delays in meeting the time limits fixed in the Treaty must be waived and others may be waived. There are some specific exceptions in the Treaty which is the reason for the last clause in this pargraph.

Section 26 of the bill amends section 44(c) of the Trademark Act by deleting the first sentence of this subsection. Since a person can secure a registration based on an intention to use the mark in commerce, the sentence is inconsistent with the amended Act. However, the sentence is no longer necessary. Under the amended Act all applicants would be required to declare use or an intention to use in commerce, whether or not the mark is also registered in the country of origin.

Section 27 of the bill deletes present subsection 44(d) of the Trademark Act and substitutes therefor a subsection providing that a right of priority may be based on a first international application as well as a first national application. Paragraph (2) of present subsection (d) is not continued. Waiver of use in commerce is no longer necessary since an application need not allege use under the amended Act. Old pargraph (4) (new paragraph (3)) of the subsection is amended to be consistent with the first sentence of section 44(c).

Section 28(a) of the bill amends the definitions, in section 45 of the Trademark Act, of the terms "trademark," "service mark," "certification mark," "collective mark" and "Intent of Act" by adding the phrase, "or intended to be used" in appropriate places consistent with the new basis for securing registrations.

Section 28(b) of the bill amends the definition, in section 45 of the Trademark Act, of "abandonment" to provide for abandonment of a mark applied for based on an intention to use where no use is commenced and there was never any intention to commence use. The two year prima facie abanodnment provision is amended to make it clear that it applies only where use of a mark is discontinued.

Section 28(c) of the bill amends section 45 of the Trademark Act by adding the following new definitions:

(1) "Filing date" is defined because of its significance in respect of priority of rights in the case of an application or registration based on the intention to use;
(2) "Date of issue" is defined;
(3) "Trademark Registration Treaty" is defined;
(4) Various terms used in respect of the Trademark Registration Treaty are referenced to the Trademark Registration Treaty definitions;
(5) The terms "Owner" and "Ownership," used in capitalized form are referenced to the Trademark Registration Treaty.

This was done in order to distinguish these references from other references in the statute to "owner" or "ownership" which refer to the owner, or ownership, of a mark.

Finally, the term "owner of a trademark" is defined. The reason for this definition is discussed under Section 1, infra.

Section 29 of the bill prescribes the implementation of the various changes effected by the bill. The effective date of the Act coincides with the entry into force of the Treaty with respect to the United States. Appropriate provisions specify the controlling law which is applicable before, or on or after, the effective date.

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(139) **Trademark Applications Under Section 44 of the Trademark Act of 1946**

[37 CFR Parts 2 and 4]

Withdrawal of Proposed Rules

Agency: Patent and Trademark Office, Commerce.
Action: Withdrawal of proposed rules.

Summary: The Patent and Trademark Office hereby withdraws its rule proposals (FR Doc. 77-23095 published in the Federal Register on Aug. 10, 1977, 42 FR-40450; 962 TMOG 2-4, Sept. 6, 1977) regarding applications filed under section 44 of the Trademark Act of 1946.

Under the proposed rules, foreign applicants filing under section 44 (d) or (e) of the Trademark Act of 1946, as amended, 15 U.S.C. 1126, would no longer have been required to allege use of the mark somewhere or to submit specimens of facsimiles demonstrating such use.

The primary consideration for the withdrawal of this rules proposal was the strong objection voiced by several commenters that the proposed rule changes would have placed some United States nationals in a less favorable position than foreign nationals than is the case under the present rules.

Effective Date: June 30, 1978.

For Further Information Contact: J. Paul Williamson, Patent and Trademark Office, 703-557-2521.

Supplementary Information: A notice was published in the OFFICIAL GAZETTE of the United States Patent and Trademark Office on Apr. 30, 1974 (921 OG TM 250) detailing the procedure being followed by the Office in connection with applications filed under section 44 of the Trademark Act of 1946 without specimens and without a statement of use of the mark. That notice is hereby withdrawn and the procedure thereunder terminated. Henceforth, in order to receive a formal filing date, an application under section 44 must include in the application at least one specimen and a statement that the mark has been used.

Those applicants having cases now under suspension in this Office in accordance with the Apr. 1974 OFFICIAL GAZETTE notice will be notified individually of the Office policy regarding specimens and use as set out above.

Finally, the withdrawal of this rules proposal should in no way be interpreted as a diminution of the continuing support of the Department of Commerce and this Office for the Trademark Registration Treaty. Under that Treaty it will be possible to treat all applicants, foreign and domestic, equally in regard to initial use requirements for filing an application for trademark registration in the United States Patent and Trademark Office.

June 16, 1978.

DONALD W. BANNER,
Commissioner of Patents and Trademarks.

JORDAN J. BARUCH,
Assistant Secretary for Science and Technology.

[FR Doc. 78-18301; Filed 6-29-78; 8:45 am]
[973 TMOG 19]

(140) **THE RETENTION SCHEDULE FOR TRADEMARK RECORDS**

As with most government agencies, the Patent and Trademark Office disposes of old files, papers and records pursuant to a specific schedule. In an effort to clarify any questions concerning the procedures for disposing of Trademark records and in response to public inquiries, the present Retention Schedule for Trademark Records and other records including trademark matters which may be of interest to the public is set forth as follows:

International Intellectual Property Activities Case Files. Project case files showing Patent and Trademark Office activity relating to problems concerning the protection of intellectual property throughout the world. Includes correspondence with private individuals, the Department of State and other countries; reports, records of international meetings concerning patents; trademarks and other matters pertaining to the protection of intellectual property throughout the world; and other materials relating to international affairs.	*PERMANENT.* Transfer to FRC 5 years after close of case. Offer to National Archives when 25 years old.
Proposed Intellectual Property Legislation Files. Documents accumulated in the preparation and processing of legislation proposed by or in the interests of the Patent and Trademark Office. Includes drafts of legislation, reports to committees on introduced legislation, and comments on legislative proposals.	*PERMANENT.* Transfer to FRC after 5 years. Offer to National Archives when 25 years old.
Trademark Adversary Proceedings Files. Consists of Trademark Opposition, Cancellation, Interference, and Concurrent-Use proceedings files.	The past schedule to destroy after 10 years is in the process of being changed. At this time, these records are not being disposed of pending the new amendment to this section.
Canceled Trademark Registration Files. Consists of original application and all related correspondence.	Destroy 2 years after the date of cancellation.
Expired Trademark Registration Files. Consists of original application and all related correspondence.	Destroy 2 years after expiration of registration.
Abandoned Trademark Application Files. Consists of original application and all related correspondence.	Destroy 2 years after date of abandonment.
Trademark Renewal Index. Index to trademark registrations that are renewed.	*PERMANENT.* Offer to National Archives when no longer needed for reference.
Indexes to Trademark Applications. Index shows applicant's name, serial number of application, filing date, name of mark description of goods, attorney's name, and final disposition of the application.	
A. Applicant's Index.	*PERMANENT.* Offer to National Archives when no longer needed for reference.
B. Serial Index.	*PERMANENT.* Offer to National Archives when no longer needed for reference.
Proceedings Index to Trademark Adversary Proceedings. Index arranged by type of proceeding. Shows status of proceeding prior to and immediately after a decision by the Board.	Destroy 3 years after termination of the proceeding.
Trademark Adversary Proceeding Records. Card file showing records of Trademark Adversary Proceedings.	*PERMANENT.* Offer to National Archives when no longer needed for reference.
Trademarks Published in Official Gazette. Clippings of marks from *Official Gazette.*	
a. Those which have been opposed.	*Retain in agency until no longer needed for reference.*
b. All others.	*Destroy when mark is registered.*
Trademark Registrant's Index. Index to Trademark registrant's name, includes serial and registration numbers, date of registration, line of goods and other related information.	*PERMANENT.* Offer to National Archives when no longer needed for reference.
Class of Goods Index. Card index used to indicate into what class any conceivable goods may fall.	Destroy after information transferred to magnetic media.
Index to Trademark Trial and Appeal Board Cases. Record of trademark trial and appeal board cases.	*PERMANENT.* Offer to National Archives when no longer needed for reference.
Public Advisory Committee for Trademark Affairs Files.	

a. Agenda, minutes, correspondence, reports and related supporting files.	*PERMANENT.* Transfer to Federal Records when 10 years old. Offer to National Archives when 25 years old.
b. papers and reference materials.	Destroy when 10 years old or no longer needed for reference, whichever is sooner.
Seminar in Trademark practice and Procedure Files. Record set of training materials used in training trademark examiners.	*PERMANENT.* Transfer to Federal Records Center when 10 years old. Offer to National Archives when 25 years old.
Trademark Petitions Files. Petitions to the Commissioner relating to trademarks with related materials.	
a. Original Petitions in trademark case file.	Dispose of with related case file.
b. Other copies.	Destroy when 2 years old.
Trademark Protest Letters. Letters of protest to the Commissioner related to trademarks.	Destroy when no longer needed or when three years old, whichever is earlier.
International Patent and Trademark Activities Case Files. Project case files showing Patent and Trademark Office activity relating to international patent and trademark programs.	
a. Records that supplement the International Property Activities Case Files (Item 103).	*PERMANENT.* Transfer to office responsible for international affairs after case is closed.
b. Other materials.	Destroy 5 years after close of case or sooner if no longer needed.
International Intellectual Property Activities Case Files. Project case files showing Patent and Trademark Office activity relating to problems concerning the protection of intellectual property throughout the world. Includes correspondence with private individuals, the Department of State and other countries; reports; records of international meetings concerning patents; trademarks and other matters pertaining to the protection of intellectual property throughout the world; and other materials relating to international affairs.	*PERMANENT.* Transfer to FRC 5 years after close of case. Offer to National Archives when 25 years old.
Proposed Intellectual Property Legislation Files. Documents accumulated in the preparation and processing of legislation proposed by or in the interest of the Patent and Trademark Office. Includes drafts or legislation, reports to committees on introduced legislation, and comments on legislative proposals.	*PERMANENT.* Transfer to FRC after 5 years. Offer to National Archives when 25 years old.
Bulky Trademark Specimens. Trademark applications specimens which do not strictly meet the basic requirements for physical form of specimens which state:	Destroy 30 days after applicant is notified that the specimens are unacceptable, unless picked up sooner by the applicant.

1. That they be made of material suitable for being placed inside a manila file wrapper.

2. That they be capable of being arranged flat, such as being folded.

3. That they be of a size not to exceed $8\frac{1}{2}$ inches wide by 13 inches long. (Rule 2.56)

These requirements provide for specimens which will fit inside the application file wrapper, which is 9×14 inches in size and which will conveniently expand to about one inch thickness.

Specimens which do not meet the above requirements are referred to as "bulky" specimens and the Examiner must require that they be replaced by specimens of acceptable size and shape.

February 28, 1979.

[980 TMOG 16]

SAUL LEFKOWITZ,
Acting Assistant Commissioner for Trademarks.

(141) **Flexible Working Hours**

On Jan. 4, 1979 the Patent and Trademark Office is beginning a 15 month experiment with flexible working hours for its employees. Under the "flexitime" experiment many of the Office's employees will have flexibility to begin their workdays as early as 6:30 a.m. or as late as 9:30 a.m., and end their workdays between 3:00 p.m. and 6:30 p.m. Employees in every case shall of course work eight hours each day. All or most patent and trademark examiners will have flexible hours.

The public hours of the Patent and Trademark Office will continue to be 8:30 a.m. to 5:00 p.m. All units of the Office which deal directly with the public will be staffed to answer telephone calls and receive visitors during those hours. All employees will be on duty from 9:30 a.m. to 3:00 p.m. The patent public search room will continue to operate from 8:00 a.m. until 8:00 p.m. and the trademark search room from 8:00 a.m. until 5:30 p.m.

With the advent of flexible hours, it will be advisable for members of the public to make appointments in advance when they wish to interview examiners.

DONALD W. BANNER,
Dec. 13, 1978. *Commissioner of Patents and Trademarks.*

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(142) **Compressed Work Week**

The Office of Personnel Management has completed a study on compressed work schedules and has recommended that Congress enact permanent legislation authorizing use of alternative work schedules in the Federal Government. The authority for the program expires on Mar. 28, 1982.

The U.S. Patent and Trademark Office has been participating in this program, on an experimental basis, for nearly two years. Most of the Office's examiners and other employees are permitted to participate under one of two options:

1. 4/10 plan-Work ten hours four days a week and choose Monday, Wednesday, or Friday as a day off each week. The day selected can be changed only with supervisory approval.

2. 5/4-9 plan-Work nine hours for eight continuous days, eight hours on the ninth day, and choose Monday, Wednesday, or Friday as a day off once every two weeks. Again, the day off can only be changed with supervisory approval.

All employees must be on duty Tuesdays and Thursdays.

The U.S. Patent and Trademark Office is interested in considering any comments or recommendations you may have about the program in order to make the proper decision concerning the continuation, revision, or termination of alternative work schedules should the Congress enact legislation authorizing its continuation.

Please send any comments or recommendations you may have, no later than Mar. 2, 1982, to:

Commissioner of Patents and Trademarks
U.S. Patent and Trademark Office
Washington, D.C. 20231

GERALD J. MOSSINGHOFF,
Jan. 21, 1982. *Commissioner of Patents and Trademarks.*

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(143) **Bulky Specimens in Trademark Cases**

When an application containing bulky specimens is received, it will be given a filing date; but before it is forwarded to the Examiner, a letter will be sent to the applicant requiring new specimens in conformance with Rule 2.56. If the new specimens are not received within six months from the date of the letter, the application will be abandoned. The letter will also note that the "bulky specimens" received by the Office will be held for pick-up by the applicant for 30 days from the date of the letter, and will then be destroyed.

This practice is being instituted to alleviate the increased storage difficulties posed by bulky specimens. As always, however, an Examiner has the discretion to request additional information in the form of bulky specimens during examination under Trademark Rule 2.61(b). In the case of International Class 16, at least one complete issue of a publication will still be required. Also in the situation where the mark is a configuration of the goods, or a configuration of the container of the goods, then one actual container may be required. The other four specimens should be facsimiles as described in Trademark Rule 2.57. All applicants are reminded that bulky specimens which are not picked up within 30 days of notification will be destroyed and that specimens having intrinsic value should not be filed.

The inconsistent provisions of the previous O.G. Notice concerning bulky specimens [900 T.M.O.G. 176 (July 25, 1972], are hereby repealed.

The new procedure will be put into effect on Apr. 1, 1979.

DONALD W. BANNER,
Feb. 28, 1979. Commissioner of Patents qr and Trademarks.

[980 TMOG 17]

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(144) **Public Advisory Committee for Trademark Affairs**

Reestablishment

In accordance with the provisions of the Federal Advisory Committee Act 5 U.S.C. App. (1976) and Office of Management and Budget Circular A-63 of Mar. 1974, and after consultation with GSA, it has been determined that the reestablishment of the Public Advisory Committee for Trademark Affairs is in the public interest in connection with the performance of duties imposed on the Department by law.

The Committee was first established in Sept., 1970, and its present charter expired on Jan. 10, 1979. Since its inception the purpose of the Committee has been to advise the Patent and Trademark Office concerning steps which can be taken to increase the efficiency and effectiveness of administration of the Trademark Act and to provide a continuing flow of knowledge from the private sector to the government in the field of trademarks. Approximately seventy-five per cent of the over one hundred twenty-five specific recommendations have been implemented at least in part. There is no question that the Committee has contributed greatly to the efficiency and effectiveness of the administration of the statute. In reviewing the Committee, the Secretary has sought continued effort towards this objective. The Committee's function cannot be accomplished by any organizational element or other committee of the Department.

As it was initially established, the Committee will continue to comprise the members of the Advisory Committee for Trademark Affairs of the United States Trademark Association. The membership is balanced and is under the control of the President of the Association. The Committee will continue to operate in compliance with the provisions of the Federal Advisory Committee Act.

Copies of the Committee's revised charter will be filed with appropriate committees of Congress.

Any inquiries or comments may be addressed to Patricia M. Davis, Committee Control Officer, Office of Trademark Program Control, U.S. Patent & Trademark Office; Washington, D.C. 20231; telephone (703) 557-3881.

GUY W. CHAMBERLIN,
Mar. 15, 1979. *Assistant Secretary for Administration.*

[FR Doc. 79-8929; Filed 3-22-79; 8:45 am]

[982 TMOG 14]

(145) **Forms Booklet Available**

A new publication titled "Patent and Trademark Forms Booklet" dated Oct. 1979 is now available from the Superintendent of Documents. The price is $12.00 and the stock number is 003-004-00569-6.

The booklet contains forms for use by the public in both patent and trademark cases. The booklet is printed on 8½ by 11 inch paper and is designed for use as a full size master copy for copying. It includes 52 English language forms (oaths, declarations, etc.) for use in patent cases, 69 non-English language forms for use under 37 CFR 1.69 situations in patent cases, 3 forms for use in international applications filed under the Patent Cooperation Treaty, and 70 forms for use in trademark cases.

Orders should be directed to:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

SIDNEY A. DIAMOND,
Mar. 26, 1980. *Commissioner of Patents and Trademarks.*

[993 TMOG 18]

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(146) **Reorganization of the Patent and Trademark Office**

In July 1980 the Patent and Trademark Office was reorganized to establish a fourth Assistant Commissioner position. The new Assistant Commissioner is known as the Assistant Commissioner for Finance and Planning. Set forth below is the text of Department of Commerce Organization Order 30-3B and an accompanying organization chart defining the functions and lines of authority for the principal units in the Patent and Trademark Office.

Section 1. Purpose

.01 This Order prescribes the organization and assignment of functions within the Patent and Trademark Office. (Department Organization Order 30-3A prescribes the scope of authority and functions.)

.02 This revision reflects the realignment of existing elements of the Patent and Trademark Office to form the offices reporting to the newly established Assistant Commissioner for Finance and Planning (Section 9.), and incorporates the provisions of outstanding amendments.

Section 2. Organization Structure

The principal organization structure and line of authority shall be as depicted in the attached organization chart (Exhibit1).

Section 3. Commissioner of Patents and Trademarks

The Commissioner of Patents and Trademarks determines the policies and directs the programs of the Patent and Trademark Office and is responsible for the conduct of all activities of the Patent and Trademark Office. The Commissioner is principally assisted by a Deputy Commissioner, four Assistant Commissioners and a Solicitor whose main duties shall be as specified below.

a. The *Deputy Commissioner* shall assist the Commissioner in the direction of the Patent and Trademark Office; shall perform the duties of the Commissioner in the latter's absence; and shall direct the Office of Equal Employment Programs.

b. The *Assistant Commissioner for Patents* (an Assistant Commissioner under 35 U.S.C 3) shall provide administrative and policy direction to the patent examining and documentation operations which consist of the organizational elements enumerated in Section 5. of this Order. The Assistant Commissioner is assisted by a Deputy Assistant Commissioner. The Deputy Assistant Commissioner shall, among other duties as assigned, have immediate responsibility for patent examination and for the organizational elements enumerated in paragraph 5.01, and shall perform the duties of the Assistant Commissioner during the latter's absence. There shall also be an Administrator for Documentation who shall have immediate responsibility for domestic and foreign patent documentation and the organization elements enumerated in paragraph 5.02.

c. The *Assistant Commissioner for Trademarks* (an Assistant Commissioner under 35 U.S.C. 3) shall provide administrative and policy direction to the trademark registration and related operations which consist of the organization elements enumerated in Section 6. of this Order.

d. The *solicitor* shall be the chief law officer of the Patent and Trademark Office and shall provide administrative and policy direction to organizational elements enumerated in Section 7. of this Order. Pursuant to Department Organization Order 10-6, the Solicitor shall be subject to the overall authority of the Department's General Counsel with respect to legal matters involving the Patent and Trademark Office, other than in connection with the issuance of patents or the registration of trademarks. The Solicitor shall be assisted by a Deputy Solicitor who shall perform the duties of the Solicitor during the latter's absence.

e. *Assistant Commissioner for Administration* shall be the principal advisor to the Commissioner on the formulation and application of administrative policies. The Assistant Commissioner for Administration shall provide administrative and policy direction to the organizational elements enumerated in Section 8. of this Order. The Assistant Commissioner shall be assisted by a Deputy Assistant Commissioner who shall perform the duties of the Assistant Commissioner during the latter's absence.

f. The *Assistant Commissioner for Finance and Planning* shall be the principal advisor to the Commissioner on financial and planning matters. The Assistant Commissioner shall provide administrative and policy direction to the organizations enumerated in Section 9. of this Order. The Assistant Commissioner shall be assisted by a Deputy Assistant Commissioner. Among other duties as assigned, the Deputy Assistant Commissioner also shall be the Director of Resource Management, with immediate responsibility for the organizational elements enumerated in paragraph 9.01.

Section 4. Organizations Reporting To The Commissioner

.01 The *Board of Appeals* shall be responsible for hearing and deciding appeals from adverse decisions of examiners upon applications for patent.

.02 The *Board of Patent Interferences* shall conduct interference proceedings and make final determinations in the Patent and Trademark Office as to priority of invention. The Board shall also hear and decide questions concerning property rights in inventions in the atomic energy and space fields brought before it under the provisions of Sections 2182 and 2456 (d) and (e) of Title 42, U.S.C.

.03 The *Office of Information Services* shall advise and represent the Commissioner on information matters; conduct programs fostering public understanding of the American patent system and of the functions, services and administrative publications of the Patent and Trademark Office; and develop publication policies,

.04 The *Office of Legislation and International Affairs* shall, subject to Department Organization Order 10-6, make studies and advise the Commissioner on policy and actions concerning matters which may require legislation or which involves international patent and trademark (intellectual property) matters; draft proposed legislation relating to patents and trademarks and advise on pending legislation affecting the Patent and Trademark Office; represent the Commissioner in the negotiation or renegotiation of treaties and the negotiation of other new major international initiatives; assist in the development and implementation of related programs; coordinate or conduct in cooperation with other appropriate Patent and Trademark Office organizations, negotiations in matters relating to existing international programs; and maintain liaison with the Office of the Secretary, the

General Counsel, other agencies, international and foreign bodies, members of the public, and appropriate congressional committees in such matters.

.05 The *Office of Equal Employment Programs*, under the immediate direction of the Deputy Commissioner, shall be responsible for the design, development, implementation, review, and maintenance of all Patent and Trademark Office Equal Employment Opportunity (EEO) programs; including EEO complaint processes, the Affirmative Action Plan, upward mobility programs and other special emphasis programs such as those for women, Hispanic-Americans, the handicapped, and all protected groups and classes of employees.

Section 5. Organizations Reporting To The Assistant Commissioner For Patents

.01 Patent Examination Organizations.

a. The *Office of Patent Program Control* shall establish program activity targets and continually evaluate status against program objectives; provide training to examiners in patent practices and procedures; and provide planning evaluation and budget support to the examination organizations, and perform such other duties as assigned.

b. The *Patent Examining Groups* shall examine applications for patents to ascertain if the applicants are entitled to patents under the law and grant patents to those so entitled. Each examining group shall perform this function for patent applications falling within the generic category assigned to it. The number of examining groups and the coverage of the generic categories shall be determined by the Commissioner.

.02 Patent Documentation Organizations.

a. The *Office of Documentation Planning, Support and Control* shall analyze the examiner and public patent search files and all proposed programs concerning them; coordinate efforts in regard to numerical files; develop and maintain overall documentation plans relating to these files; define the form, content and accessibility of these files and insure such definition through periodic checks; initiate the acquisition and provision of patent documentation for these files; coordinate the development of an overall system, and the efforts of related implementing activities, to insure the accuracy and effective utilization of patent data; provide budgetary and other services for the documentation organizations; and establish performance standards and evaluation criteria for, and monitor and evaluate, the activities of the documentation organizations.

b. The *Office of International Patent Classification* shall direct Patent and Trademark Office initiatives designed to foster harmonization of the United States Patent Classification System with the International Patent Classification System. The Office shall also consult and participate with foreign counterparts representing national offices and appropriate international groups in further development and refinement of the International Patent Classification System. In carrying out such consultations and participations, it shall coordinate all related policy matters with the Office of Legislation and International Affairs.

c. The *Office of Micrographic Systems* shall develop and recommend plans for micrographic information systems including analyses of existing and proposed micrographic hardware and techniques suitable for meeting the particular demands of the U.S. Patent and Trademark Office. It shall also evaluate ongoing micrographic information systems in respect to the responsiveness of such systems to evolving informational needs. The foregoing shall be coordinated with other appropriate offices such as the Office of Automatic Data Processing Administration and the Office of Search Systems

d. The *Office of Search Systems* shall maintain a state-of-the-art awareness of machine-assisted information storage, access, retrieval, and display systems useful or potentially useful in searching patent documentation; participate with parties in the private and government sectors in cooperative programs designed to develop systems for Patent and Trademark Office utilization; evaluate the potential of existing and cooperatively developed systems; initiate the acquisition and adaption of selected systems and direct the maintenance of all non-operational search and display systems (equipment and materials); conduct and evaluate pilot tests in Patent and Trademark Office operating environments; recommend operational establishment or discontinuance of evaluated systems; and monitor and evaluate the performance of operational systems.

e. The *Scientific Library* maintains collections of technical and scientific information such as foreign patents, periodicals, books and other publications, in printed or microfilm form, and provides related services and facilities, for use by the public and by examiners and other personnel in the internal operations of the Patent and Trademark Office.

f. The *Classification Groups* shall develop, implement and maintain subject matter classification systems for the organization of patent search files of prior art including the preparation of definitions, indexes, schedules, and related documentations. Each classification group shall perform this function for subject matter falling within the generic category (chemical, electrical, mechanical) assigned to it.

Section 6. Organizations Reporting To The Assistant Commissioner For Trademarks

.01 The *Office of Trademark Program Control* shall develop guidelines governing trademark examining procedures; establish program activity targets and continually evaluate status against program objectives; and provide instruction in trademark practice and procedures and coordinate trademark administrative support activities.

.02 The *Trademark Trial and Appeal Board* shall be responsible for hearing and deciding adversary proceedings involving interfering applications, oppositions to registration, cancellations, and concurrent use proceedings; and for hearing and deciding appeals from final refusals of the trademark examiners to allow the registration of trademarks.

.03 The *Trademark Examining Operation* shall be responsible for the classification of trademark applications into classes of goods and services, the examination and processing of these applications, and the registration of trademarks, service marks, and certification marks, and maintain the principal and supplemental registers of trademarks. The Trademark Examining Operation shall be composed of examining divisions, the number and coverage of such divisions to be determined by the Commissioner.

Section 7. Offices Reporting To The Solicitor

.01 The *Office of the Solicitor* shall handle all litigation to which the Commissioner is a party and provide other legal services, including advice and assistance on legislative matters, and maintenance of the law library.

.02 The *Office of Government Employee Inventions* shall review questions of ownership of patents and rights to inventions made by Government employees in issues brought before it under Executive Order 10096 and shall make appropriate recommendations to the Commissioner for action on such questions.

Section 8. Office Reporting To The Assistant Commissioner For Administration

.01 The *Office of Automatic Data Processing Administration* shall coordinate automatic data processing resources for the Patent and Trademark Office; recommend to management the acceptance, updating or termination of all Patent the Trademark Office automatic data processing resources and contracts; provide management with regular reviews on the status of automatic data processing expenditures and utilization of resources; advise management on alternatives for meeting defined short and long range ADP requirements; coordinate ADP procurement and installation; operate a central computer facility for the Patent and Trademark Office responsive to user needs; conduct and review specified ADP feasibility studies; design, implement, operate and

coordinate specialized ADP management information systems, including data collection, manipulation and dissemination; coordinate ADP liaison for the Patent and Trademark Office with the Department of Commerce and other Federal agencies; provide programming and systems design resources for approved projects based on requirements; provide technical assistance to the Patent and Trademark Office to fulfill needs as specified by the user.

.02 The *Office of General Services* shall plan and administer a broad Office-wide program of general services, including procurement control; property, space, and facilities management; communications, files, mail and correspondence, and forms management; administrative printing; and clearance of all requirements involving contractual procurements, including liaison with the Department of Commerce, in connection therewith.

.03 The *Office of Patent and Trademark Services* shall provide materials and services to the public, many on a fee basis, as well as to examiners and other personnel for internal operations of the Patent and Trademark Office. It shall maintain a Public Search Room with a collection of U.S. patents; record assignments and other instruments for the transfer of property rights to patents and trademarks; furnish copies of patents, trademark registrations and office records; and provide drafting services. It shall also conduct an initial examination of patent applications for compliance with law and regulations as to form and certain matters of factual content; grant or deny a filing date based on such examination, and forward to the Examining Groups those granted a filing date; acknowledge the acceptance or rejection of applications for examination; and maintain records on the status and location of all applications.

.04 The *Office of Personnel* shall administer activities relating to recruitment, placement, employee relations, training and career development, incentive awards, performance rating, position classification and wage administration, group-management relations, and various employee benefit programs.

.05 The *Office of Publications* shall schedule and manage the processing and movement of allowed patent application files in procuring the creation of full patent text machine language data base and the composition and printing of weekly issues and related announcements in the Official Gazette; provide requisition and scheduling services for trademark publications; monitor the quality or performance by contributing sources and maintain close liaison with U.S. Government Printing Office; and prepare and issue patent grants and periodic publications of patent indexes.

Section 9. Offices Reporting To The Assistant Commissioner For Finance And Planning

.01 Resource Management Organizations.

a. The *Office of Finance* shall develop and maintain the financial accounting system of the Patent and Trademark Office, perform accounting operations for the revenue, trust funds, and appropriation of the Patent and Trademark Office, including maintenance of general accounts and related fiscal records, preparation of financial statements and reports, audit and certification of vouchers for payment, issuance of deposit account statements, initiation of action to collect amounts due the Patent and Trademark Office, and administration of the payroll system and related employee accounts; and provide financial advice.

b. The *Office of Budget* shall develop and maintain Patent and Trademark Office budget and fiscal plans; provide advice and staff to assist line managers in preparing, reviewing, justifying, presenting and executing the Patent and Trademark Office's budget; develop budgetary policies and procedures for the entire Patent and Trademark Office budget process; maintain budgetary accountability for available funds: maintain external liaison on budgetary matters; and provide assistance in integrating program plans with the budgetary process.

c. The *Office of Planning and Evaluation* shall coordinate and help develop medium and long range plans for all Patent and Trademark Office programs; develop and administer a system for integrating the Patent and Trademark Office planning process with the budgetary process; coordinate and help develop goals, objectives, and strategies for the operating program offices of the Patent and Trademark Office, and evaluate the effectiveness of the administration of the programs against those goals, objectives and strategies.

.02 The *Office of Management and Organization* shall develop and/or receive requests for management improvement systems, programs or projects, including studies for work measurement, resource utilization, workflow analyses, computer systems, operations research and other operational problems and programs and determine the best resource(s) for analyses, resolution, and implementation; conduct organizational reviews; conduct, coordinate or assign studies on resource utilization, procedures or workflow analyses; coordinate work measurement studies; manage Patent and Trademark Office policy orders and administrative instructions and issuances; develop and maintain statistical data; and develop and manage a historical file on all management studies and statistical data developed.

.03 The *Office of Technology Assessment and Forecast* shall continually assess the status of technological activities in all countries; compare inventive activity in the United States relative to other nations; and forecast development on a worldwide basis.

.04 The *Office of Quality Review* shall establish criteria for reviewing, and perform a review of the quality of examination of patent and trademark applications which have been examined. The Office shall review; the application of substantive statutory criteria for patentability or registrability; the adequacy of the examiner's search of prior patent, trademark or other literature; and the adherence to approved examining procedures. The Office shall provide information to managers and examiners on the results of its review, and make recommendations for maintaining or improving the quality of examination.

Section 10. Effect on Other Orders

This Order supersedes Department Organization Order 30–3B of Aug. 19, 1976, as amended.

SIDNEY A. DIAMOND,
Commissioner of Patent and Trademarks.
Assistant Secretary for Science and Technology.
Acting Assistant Secretary for Administration.
[1001 O.G. 10]

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(147) **Change in Official Gazette Entry to Show Cancellation of Fewer Than All Classes in a Multiple Class Registration**

Effective with the *Official Gazette* issue of December 16, 1980, there will be a change in the *Official Gazette* listing entitled "Trademark Registrations Cancelled." Beginning with that issue, "Trademark Registrations Cancelled" will list:

(1) single class registrations cancelled;
(2) multiple class registrations cancelled in all classes;
(3) multiple class registrations cancelled in fewer than all classes.

For every entry in the listing, the specific classes cancelled will be included in parentheses, next to the registration number and mark.

For a single class registration and for a multiple class registration in which every class has been cancelled, the class number(s) shown in parentheses will represent every class to which the registration applied.

For a multiple class registration in which fewer than all classes have been cancelled, the *Official Gazette* entry will include the word "only" following the notation of classes in parentheses, for example: (Int. Cls. 12 and 20,

only). In this example, the addition of the word "only" would indicate that there are classes in the registration in addition to Classes 12 and 20, but only Classes 12 and 20 have been cancelled.

MARGARET M. LAURENCE,
Oct. 29, 1980. *Assistant Commissioner, for Trademarks.*

[1000 TM 21]

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(148) **Trademark Examining Procedure for Amended Applications; Reporting Oldest Dates of Amended Trademark Applications**

Effective immediately, the order in which amendments to trademark applications are examined is changed. Previously, Examiners have usually acted on amended cases in order of filing date of the application which the amendment concerned, i.e., amended cases with the oldest filing date were examined first. Under the new procedure, amended cases will normally be examined in the order in which the amendment or other response is received, i.e., amendments that are received first will normally be examined first.

Effective with this issue of the *Official Gazette* (Trademark Section) in order to reflect more accurately the condition of division dockets, the column reporting the date of the oldest amended application in each division has been changed to indicate the date of receipt of the oldest filed amendment. Under this new method of reporting the oldest date of receipt of a filed amendment upon which no action has been taken by an Examiner will be indicated for each division of the Trademark Examining Operation.

RENE D. TEGTMEYER,
July 15, 1971. *Assistant Commissioner.*

[889 O.G. TM 6]

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(149) **Trademarks—Status Inquiries**

In order to expedite the handling of inquiries regarding the status of both new and amended applications, the Patent Office has adopted a new procedure. Henceforth, status inquiries should be filed in duplicate and should identify by title and date the last paper known by the applicant to have been filed to the case. Each inquiry should be accompanied by a self-addressed, stamped envelope. The original inquiry will be entered in the file and the duplicate will be marked with a response and returned to the applicant. The date when the next office action can be expected will not be given unless specifically requested.

Status letters have been used by applicants to establish diligence in support of a later petition to revive should the application become abandoned. Under current practice, attorneys have frequently submitted status letters as a matter of course for such purposes. This has proved burdensome both to attorneys and the Patent Office. Until further notice, in new applications, the applicant will be considered to have exercised diligence in connection with a petition to revive an application abandoned for failure to respond to the initial office action if inquiry as to the status of the application is received by the Patent Office within either one of the two following periods, whichever expires later:

a. Eighteen months from the filing date of the application, or

b. A reasonable period after the *Official Gazette* (Trademarks) indicates that the filing date of the oldest new case awaiting action in the Division to which the application is assigned is more recent than the filing date of the application.

For amended cases, the applicant will be considered to have exercised diligence if inquiries as to the status of the application are received by the Patent Office within either one of the two following periods, whichever expires later:

a. Eighteen months after filing a response to the examiner's last received action, or

b. A reasonable period after the *Official Gazette* (Trademarks) indicates that the date of the oldest amendment filed that is awaiting action in the Division to which the application is assigned is more recent than the date of filing the last amendment to the application.

It should be noted as an exception to the above that status inquiries are totally unnecessary during period(s) of time when an application is suspended pursuant to 37 CFR 2.67.

Applicants are urged not to file status inquires within the first year after filing due to the current backlog of new applications.

ROBERT GOTTSCHALK,
July 28, 1971. *Acting Commissioner of Patents.*

JAMES H. WAKELIN, JR.,
July 30, 1971. *Assistant Secretary for Science and Technology.*

[FR. Doc. 71-11532 Filed 8-10-71; 8:48 am]

Published in 36 F.R. 14771, Aug. 11, 1971

[890 O.G. TM 5]

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(150) **Requests for Information on Status of Trademark Registrations**

The purpose of this notice is to explain the circumstances in which the Trademark Examining Operation can respond to written and telephone requests for information about the status of trademark registrations. Only limited information can be provided by telephone.

I. Orders for "Status" Copies

The most reliable means of obtaining status information concerning a registration is a written order for a "status" copy of the registration. Status copies show whether affidavits have been filed under Sections 8 and 15, whether the registration has been renewed or cancelled, and whether certain other actions have been taken with respect to the registration. The charge for copies of registrations showing status and/or title, if not certified, is $6.50, effective Oct. 1, 1982. The charge for a certified copy showing status and/or title is $10.00 effective the same date.

II. Telephone Information Available from the Search Library

If the caller has the registration number, he or she may leave a request for status information on an automatic answering machine in the Trademark Search Library (Search Room) at 703-557-3282. The Search Library staff will call back with the information requested within one working day. Callers are asked to limit their requests to two registration numbers per day.

The Search Library staff is not permitted to make "searches" to determine if particular marks are in the Office's search files. Neither is the staff able to supply information as to the ownership or assignment of registrations, or to read over the telephone lengthy passages of a registration, such as the identification of goods or services.

III. Telephone Information on Receipt of Section 8 and 15 Affidavits and Renewal Applications

The Post Registration Section can be reached by calling 703-557-2923. The staff of this section can advise only on whether an affidavit or a renewal application has or has not been received. Inquiries as to whether affidavits and renewals have been accepted should be directed to the Search Library.

MARGARET M. LAURENCE,
Sept. 15, 1982. *Assistant Commissioner for Trademarks.*

(151) **Renewal Applications and Section 8 Affidavits**

There has been a noticeable increase in the number of petitions requesting provisional acceptance of defectively executed Section 8 Affidavits and Renewal Applications under 35 U.S.C. §26, the most common problem being a lack of notarization or a Rule 2.20 declaration. Often, such petitions are necessitated by the failure of registration owners to file the documents early enough to leave time in which to correshould they prove defective.

Section 8 Affidavits may be filed beginning with the fifth anniversary of the registration. The period for filing expires on the sixth anniversary of the registration. The period for filing Renewal Applications begins six months before the twentieth anniversary of the registration and extends three months beyond the expiration of the twenty year term. While the Post Registration Division may allow up to six months to respond to a notice of defect, it may not allow corrective action beyond the period for filing established by the Trademark Act. It is therefore in the registrant's best interest to file such documents as close to the opening date as possible to allow time for correction, if necessary. Provisional acceptance under 35 U.S.C. §26 has been, and will continue to be, given narrow application. Registrants should not rely on 35 U.S.C. §26 as a means of acquiring an extension of time.

We have also become aware of many delays caused by defects in the chain of title. Registrants are encouraged to keep Patent and Trademark Office assignment records current with regard to ownership of registrations.

The filing of Post Registration documents at the earliest date and maintenance of assignment records will help to avoid the cancellation or expiration of registrations of trademarks currently in use, and will result in a savings of time and expense for both the registrant and the Patent and Trademark Office.

MARGARET M. LAURENCE,
Apr. 19, 1983. *Assistant Commissioner for Trademarks.*

[1030 TMOG 37]

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(152) **Title 37—Patents, Trademarks, and Copyrights**

Chapter I—Patent Office, Department of Commerce

Parts 2 and 6—Rules of Practice in Trademark Cases

International Trademark Classification

A proposal was published at 37 F.R. 6404 to revise §6.1 of the Rules of Practice in Trademark Cases. The Patent Office proposed to establish the "International Classification of Goods and Services to Which Trademarks Are Applied" (the subject of the "Nice Agreement Concerning the International Classification of Goods and Services for the Purposes of the Registration of Marks" of 1957, as revised at Stockholm on July 14, 1967) as the primary classification of goods and services for registration of trademarks and service marks. Pursuant to the Notice, written comments have been received, and a public hearing was held on June 14, 1972. Full consideration has been given to all matter presented, and changes in the text of the original proposal have been made in view thereof. It has been determined that adoption of the international classification system is desirable.

The Patent Office has studied the international classification and, since Mar. 5, 1968, has indicated the appropriate international class in all publications and on all issued registrations and renewals as a subsidiary classification. Based on this experience and the comments received, it is now believed that adoption of the international schedule as the primary classification system is desirable. The international system is easier to administer because of fewer classes of goods and the availability of an alphabetical listing of goods and services.

The Nice Agreement provides for an International Committee of Experts whose objective is to keep the classification current. The classification of specific goods and services is set forth in the Alphabetical List entitled "International Classification of Goods and Services to Which Trademarks Are Applied" (published by the World Intellectual Property Organization). In addition, the International Trademark Classification List contains the names of the classes setting forth the basic contents of each class. The Alphabetical List also comprises explanatory notes which serve as guidelines for determining the appropriate international class for a specific product or service.

The alphabetical listing within the International Trademark Classification Manual is currently used by the Office as a guideline for determining the degree of particularity of identification of goods. See "Identification of Goods and Services in Trademark Applications," 36 F.R. 13232; July 16, 1971.

Applications for registrations filed on or after Sept. 1, 1973, and registrations issuing thereon, will be classified according to the international classification set forth in the new §6.1. Accordingly, the international classification is adopted under Section 30 of the Trademark Act of all purposes under the statute and rules; and, therefore, will be the criterion for determining, inter alia, fees.

Applications for the registration of marks filed on or before Aug. 31, 1973, appeals or petitions to revive or oppositions filed in connection with said applications, and affidavits, renewals and petitions for cancellation filed in connection with registrations issuing thereon, will continue to be processed under the classification system existing at the time the mark was registered.

All applications which are published and registrations which are issued will carry both the appropriate international classification and existing U.S. classification number.

An insufficient fee, in connection with an appeal or opposition on any application or in connection with an affidavit or renewal filed in connection with any registration, will not render the same unacceptable, if the proper fee is submitted within a time limit set forth in a notification of the defect, providing the proper fee for at least one class has been originally submitted within the applicable time limit. This will be the case even if the full fee is not received within the sixth year in the case of an affidavit filed under Section 8 or before the end of the twentieth year, including the grace period, in the case of renewal applications, or within the six-month statutory response period in the case of an appeal, or within the thirty-day opposition period, or any extension thereof in the case of the filing of an opposition.

The existing classification system will continue to be used for searching registered and pending marks until all documents in the search file are organized on the basis of the international system of classification. Until this changeover is effected, the U.S. class designation will continue to be printed on all published applications and registrations issued under the existing or the international classification system to facilitate searching on the basis of the existing U.S. system of classification.

Until all applications filed on or before Aug. 31, 1973, have been disposed of, the trademark sections of the *Official Gazette*, which are organized by class, will include two sections: one for applications published or registrations issued on the basis of applications filed on or before Aug. 31, 1973, organized by class according to the U.S. schedule of classes; the other section for applications published or registrations issued on the basis of applications filed on or after Sept. 1, 1973, organized by class according to the new international schedule.

Certification marks and collective membership marks will continue to be classified as set forth in redesignated §§6.3 and 6.4.

Efforts will be made to have the International Trademark Classification List printed by the Government Printing Office or otherwise assure the availability of the List from local sources. Notification will appear in the

Official Gazette when the List is available from local sources of the Government Printing Office.

The English edition of the "International Classification of Goods and Services to Which Trademarks Are Applied" can presently be ordered from:

Sales Branch, The Patent Office, Block C
Station Square House, St. Mary Cray
Orpington, Kent, England

Certain modifications and additions to the international trademark classification have been published as supplements and are also available from the British Office. In addition, and inasmuch as the World Intellectual Property Organization (WIPO) has issued the List in several languages, it is anticipated that an English version will be published by that organization.

We have been advised by the Patent Office of the United Kingdom that the only acceptable methods of payment for the International Trademark Classification List are by International Postal Money Order or by banker's draft payable in sterling and drawn on a bank in the United Kingdom.

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ROBERT GOTTSCHALK,
May 14, 1973. *Commissioner of Patents.*
BETSY ANCKER-JOHNSON,
Assistant Secretary for Science and Technology.

Published in 38 F.R. 41681, June 4, 1973

[911 O.G. TM 210]

(Note: Rule 2.85 (Classification schedules) was revised and Rule 6.1 (International schedule of classes of goods and services) was established as of September 1, 1973 by this notice; prior U.S. schedule of classes was redesignated as Rule 6.2.)

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(153) Change in Format for Publishing Trademarks for Opposition

Section 30 of the Trademark Act of 1946 as amended by Public Law 772, 87th Congress, approved October 9, 1962, 76 Stat. 769, provides for the filing of a combined application for the registration of a trademark in more than one class.

The present practice of publishing the mark with pertinent data under each class in which registration is sought results in needless duplication.

Beginning with the issue of November 3, 1964, "Marks Published for Opposition" will be divided into two sections. In Section 1, all marks presented in combined applications for registration in more than one class will be published with only one reproduction of each mark.

The reproduction of the mark will be followed by the class numbers and titles, and under each class will appear the description of the goods in connection with which the trademark is used. If the date of first use applies to all classes, it will appear following the last class; otherwise, the dates of use will appear after each class.

Trademarks presented in applications for registration in a single class will be published, as in the past, in class order, in Section 2.

The same procedure will be followed in the notice of the issuance of registrations on the Supplemental Register.

EDWIN L. REYNOLDS,
Sept. 18, 1964. *First Assistant Commissioner.*

[807 O.G. TM 51]

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(154) Changes in Format for Publishing Trademarks for Opposition

Because of the adoption of the International classification of goods and services by the United States as of September 1, 1973 (see *Official Gazette* of June 26, 1973, 911 O.G. TM 210), it is necessary to change the arrangement in the *Official Gazette* of the marks published for opposition.

Beginning with the issue of May 7, 1974, the section of the *Official Gazette* entitled "Marks Published for Opposition" will be divided into four sections instead of the present two sections. (For the preceding change from one to two sections, see *Official Gazette* of October 13, 1964, 807 O.G. TM 51.) Sections 1 and 2 will be according to international classification and will contain marks in applications filed on or after September 1, 1973, and Sections 3 and 4 will be according to prior United States classification and will contain marks in applications filed on or before August 31, 1973.

In Section 1, all marks presented in combined applications filed on or after September 1, 1973 for registration in more than one international class will be published with only one reproduction of each mark. The reproduction of the mark will be followed by the international class numbers, and under each class will appear the goods or services in connection with which the mark is used. If the date of first use applies to all classes, it will appear following the last class; otherwise, the dates of use will appear after each class.

In Section 2, all marks presented in applications filed on or after September 1, 1973 for registration in a single class will be published in international class order.

In Section 3, all marks presented in combined applications filed on or before August 31, 1973 for registration in more than one prior United States class will be published with only one reproduction of each mark. The reproduction of the mark will be followed by the prior United States class numbers and titles, and under each class will appear the goods or services in connection with which the mark is used. If the date of first use applies to all classes, it will appear following the last class; otherwise, the dates of use will appear after each class.

In section 4, all marks presented in applications filed on or before August 31, 1973 for registration in a single class will be published in the prior United States class order.

The following explanation will appear under the heading "Marks Published for Opposition":

> The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Applications for the registration of marks in more than one class have been filed as provided in section 30 of said act as amended by Public Law 772, 87th Congress, approved Oct. 9, 1962, 76 Stat. 769. Opposition under Section 13 may be filed within thirty days of the date of this publication. See Rules 2.101 to 2.105.
>
> A separate fee of twenty-five dollars for opposing each mark in each class must accompany the opposition.

Sections 1 through 4 will appear immediately after the above explanation, the sections being designated as follows:

Section 1. International classification—Application in more than one class
Section 2. International classification—Application in one class
Section 3. Prior United States classification—Application in more than one class
Section 4. Prior United States classification—Application in one class

The same procedure of dividing into four sections will be followed in the notice of the issuance of registrations on the Supplemental Register.

RENE D. TEGTMEYER,
Mar. 22, 1974. *Assistant Commissioner for Trademarks.*

[921 O.G. TM 122]

(155) Hand Delivery of Trademark Papers

Trademark papers which are not accompanied by fees or by authorization to charge a deposit account, may be filed by hand in the Trademark Docket Section or in the Incoming Mail Section of the Mail and Correspondence Division. However, to avoid confusion concerning money matters, when papers which are accompanied by fees or by authorization to charge a deposit account are filed by hand, they should be delivered only to the window in the Incoming Mail Section of the Mail and Correspondence Division where personnel can immediately refer the money or the charge to the Cashier. Trademark Examiners should not be requested to receive papers for filing (either with or without fees) since there is no convenient procedure by which the Examiners can transmit such papers to proper locations.

If a receipt is desired from the Trademark Docket Section, it may take the form of a duplicate copy of the paper or of a card identifying the paper and the application. The receipt will be date-stamped at the same time as the paper and handed back to the person delivering the paper. If a receipt is desired from the Incoming Mail Section, a card should be used. The card will be date-stamped and handed back to the person delivering the paper.

When a card is used for receipt, it should contain sufficient information to identify the paper and the application clearly, such as applicant's name, the serial number and filing date of the application, the mark, and the title or a description of the paper being filed.

In the discretion of the Assistant Commissioner for Trademarks, or of the Director of the Trademark Examining Operation, or of the Trademark Trial and Appeal Board, papers appropriate for those Offices (such as petitions or briefs) may be filed by hand in such Offices.

The procedure set forth in the notice entitled "Hand-Delivery of Papers" in the *Official Gazette* of February 26, 1974 (919 O.G. TM 180) pertains to papers for patent applications. The designation "Examining Group" used in that notice relates to the patent examining area of the Patent Office. (The equivalent designation in the trademark examining area is "Examining Division.")

RENE D. TEGTMEYER,
Aug. 21, 1974. *Assistant Commissioner for Trademarks.*

[926 O.G. TM 132]

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(156) Mail Delays and Petitions to Revive (Trademarks)

Since applications that become abandoned unintentionally present burdens to both the Patent office and the applicant, a simplified procedure has been devised to alleviate these burdens when the abandonment results from a delay in the mails. This procedure (which is similar to the procedure adopted for patent applications at 910 O.G. 402 and 910 O.G. TM 76) provides for an automatic petition to revive.

When a trademark communication which falls within the circumstances enumerated below is mailed to the Patent Office more than three full days prior to the due date, a conditional petition may be attached to the communication. If the communication is received in the Patent Office after the due date and the application becomes abandoned, the conditional petition will become effective, subject to the following requirements. The petition must include (1) an authorization to charge a deposit account for any required fees, including the petition fee, and (2) an oath or declaration signed by the person mailing the communication and also signed by the applicant or his attorney stating that the communication and petition were either placed in the United States mail as first class or air mail or placed in the mail outside the United States as air mail. Since mail handled in this manner may reasonably be expected to reach the Patent Office by the due date, any mail delays beyond such time will be considered to constitute unavoidable delay and sufficient cause to grant a petition to revive (Section 12(b) of the Trademark Act of 1946).

The circumstances under which this procedure may be used are those where the communication, if timely filed, (1) would be a proper and complete response to an action or request by the Patent Office, and (2) would stop a period for response from continuing to run. Accordingly, this procedure would be appropriate for:

1. A response to a non-final Office action.
2. A response to a final Office action which places the application in condition for publication or issue.
3. A notice of appeal and requisite fee.
4. An appeal brief.

A suggested declaration form for the petition is shown below:

Applicant:
Serial No.: Petition to Revive
Date Filed:
Mark:

I hereby declare that the attached communication is being deposited in ( ) the United States mail as first class or air mail, or ( ) the mail outside the United States as air mail, in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on _____, which date is more than three full days prior to the due date, at _____, by _____.
(Location) (Name of individual)

In the event that such communication is not timely filed in the Patent Office, it is requested that this paper be treated as a petition to revive and that the delay in prosecution be held unavoidable.

The petition fee is authorized to be charged to Deposit Account No. _____ in the name of _____.

The undersigned declares further that all statements made herein of his own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or document or any registration resulting therefrom.

Date: (Signature of applicant or applicant's attorney)
And
Date: (Signature of person mailing, if other than the above)

Normal petition practices are not affected in those situations where this procedure is either not elected or not appropriate, nor does this procedure bar the granting of a petition in different fact situations where justified.

RENE D. TEGTMEYER,
Mar. 21, 1974. *Assistant Commissioner for Trademarks.*

[921 O.G. TM 126]

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(157) Recording of Documents Affecting Title

The Patent Office is liberalizing its policy concerning the recording of documents, other than assignments, which affect title to trademark registrations and applications. Under Rule 2.185 of the Trademark Rules of Practice, instruments affecting title to a trademark registration or application, and licenses of trademarks which are the subject of trademark registrations or applications, will be recorded even though the recording thereof may not serve as constructive notice under Section 10 of the Trademark Act of 1946, as amended (15 U.S.C. 1060).

WILLIAM E. SCHUYLER, JR.,
June 16, 1971. *Commissioner of Patents.*

Published in 36 F.R. 13231; July 16, 1971

[889 O.G. TM 2]

(158) **Separation of the Patent and Trademark Sections of the Official Gazette**

Effective February 2, 1971, the *Official Gazette* will be separated into two parts to be known as the *Patent Official Gazette and the Trademark Official Gazette.*

* * * * *

Orders for subscriptions should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Also effective February 2, 1971, the *Official Gazette* will no longer contain "Decisions in Patent and Trademark Cases." Decisions of the type heretofore found in the "Decisions in Patent and Trademark Cases" are published by non-Federal organizations such as, for example, the Bureau of National Affairs, Inc., 1231 25th St. NW., Washington, D.C. 20037, and West Publishing Co., 50 Kellogg Blvd., St. Paul, Minn. 55102.

Finally, the "Decisions Leaflet" of the *Official Gazette* will no longer be supplied as a separate subscription item after January 26, 1971. According to present plans, however, both the *Patent Official Gazette* and the *Trademark Official Gazette* will have identical "Patent Office Notices" sections containing notices of the various types heretofore published in the Gazette decision leaflet and Trademark Section. Those notices of particular interest to Patent Office employees will be accumulated and published approximately every fourth week, and distributed separately to employees.

WILLIAM E. SCHUYLER, JR.,
Dec. 29, 1970. *Commissioner of Patents.*

[882 O.G. TM 33]

(159) **Trademark Office Actions**

Effective Apr. 1, 1972, trademark applicants or their attorneys will be provided with only one carbon copy of any office action, and the mailing of an additional carbon copy will be discontinued.

This change is consistent with the current practice in the patent examining operations and should result in greater efficiency in the preparation and mailing of office actions.

ROBERT GOTTSCHALK,
Feb. 7, 1972. *Commissioner of Patents.*

[895 O.G. TM 238]

(160) **Wording In Verification or Declaration of Trademark Application**

Applicants and attorneys are requested to use the following wording in the part of the verification or declaration of the trademark application which indicates the signer's belief that the mark applied for does not resemble another person's mark:

> —that no other person, firm, corporation, or association, to the best of his knowledge and belief, has the right to use such mark in commerce either in the identical form thereof or in such near resemblance thereto *as to be likely, when applied to the goods of such other person, to cause confusion, or cause mistake, or to deceive:*—

The wording emphasized conforms to the present language of both Sections 1(a)(1) and 2(d) of the Trademark Act of 1946.

Some applicants and attorneys, instead of using the wording emphasized above, are still using the now obsolete wording "as might be calculated to deceive" which was promulgated in the forms under the Trademark Act of 1905 and inadvertently continued by the Act of 1946 up to October 1962 in Section 1(a)(1) and in the forms connected with the Act. Section 1(a)(1) of the 1946 Act was amended by Act of October 9, 1962 (Public Law 772, 87th Congress, 76 Stat. 769) to conform it to the language of Section 2(d) of the 1946 Act, since the language of Section 2(d) reflects the thinking at the time the 1946 Act was written. The wording of the trademark forms for the 1946 Act has also been amended appropriately.

It is desirable that proper wording be used. However, since the differences in wording referred to above are considered to be differences of form rather than of substance. Examiners will not require new verifications or declarations. When the obsolete wording is observed and a letter is to be written for other reasons, Examiners will at that time call attention to the fact that the wording is obsolete and should be modified in applications in the future.

RENE D. TEGTMEYER,
Mar. 25, 1974. *Assistant Commissioner for Trademarks.*

[921 O.G. TM 186]

(161) **Rules Service Company Address Change**

The Patent and Trademark Office has been notified of a change in the address and telephone number of the Rules Service Company which publishes a looseleaf Rules of Practice in Patent and Trademark Cases with a revision service. The new address and telephone numbers are:

Rules Service Co.
4341 Montgomery Ave.
Bethesda, Md. 20014
(301) 656-4660

SIDNEY A. DIAMOND,
Apr. 7, 1980. *Commissioner of Patents and Trademarks.*

[994 O.G. 10]

(162) **Late-Filed Renewal Fees**

Sections 9 and 31 of the Lanham Act (15 U.S.C. §§1095 and 1113) require that an additional five dollar ($5.00) fee be submitted by a registrant who files a renewal application during the three-month period following expiration of its registration. The language of the statute requires that this additional fee be submitted within the three-month grace period. A number of registrants who have failed to submit the additional fee within the prescribed period have petitioned the Commissioner to allow their renewal applications. The Commissioner has granted petitions of this kind where the registrant or its attorney maintained a Patent and Trademark Office deposit account which contained, on the date the renewal application was filed, sufficient funds to cover the additional fee. Specifically, the Commissioner has exercised discretion under Trademark Rules 2.146(a)(3) and 2.147 to deem the authorizations to charge the deposit accounts to have taken place at the time the registrants filed their renewal applications, even though the authorizations were not confirmed until a later date. This Office policy was established by the Commissioner's decision in *In re Ralston Purina Co.*, 191 USPQ 154 (Comr. Pats. 1976).

The policy established by the *Ralston Purina* decision is being changed. Henceforth, the Commissioner will no longer exercise discretion to charge deposit accounts *nunc pro tunc* for trademark renewal application fees. To allow an authorization to charge a deposit account to relate back to a date on which no actual authorization existed is, in effect, to allow late payment. It is inequitable to permit those registrants who have deposit accounts (or those whose attorneys have such accounts) to make late payment of renewal fees, while those without deposit accounts may not.

Petitions relying on *Ralston Purina* will, after the date of this notice, be denied, unless the events that gave rise

to those petitions occurred before publication of this notice.

MARGARET M. LAURENCE,
Feb. 20, 1981. *Assistant Commissioner for Trademarks.*

[1004 O.G. 29]

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(163) **Single Copies of the Trademark Official Gazette**

Members of the public ordering single copies of the Trademark Official Gazette from the Superintendent of Documents are reminded they must specify the date of the issue being ordered.

The date of the issue in which a mark will be published for opposition is shown on The Notice of Publication form mailed to applicants approximately two weeks before the publication date. This date must be included on each single copy order.

Orders received without an issue date may be filled from current weekly stock. The Superintendent of Documents cannot check on whether a particular mark is published in the issue then in stock. If the stock is exhausted at the time the order is received, the order will be returned unfilled.

MARGARET M. LAURENCE,
Mar. 3, 1981. *Assistant Commissioner for Trademarks.*

[1004 O.G. 36]

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(164) **Consolidated Certificates Under Trademark Rule 2.88**

Trademark Rule 2.88 provides as follows:

Applications may be consolidated.

a. When several applications have been filed by the same applicant for registration on the same register of a mark shown in identical form on the drawings for goods and/or services in different classes and each of the applications has been allowed, a single certificate based on such applications may be issued. A request for the issuance of a consolidated certificate must be made of record in each of the applications involved prior to the allowance of any of the applications.

b. The issuance of any original certificate may be suspended upon request of the applicant for a period not exceeding 6 months, to permit such consolidation.

The resulting certificate of registration is known as a consolidated certificate.

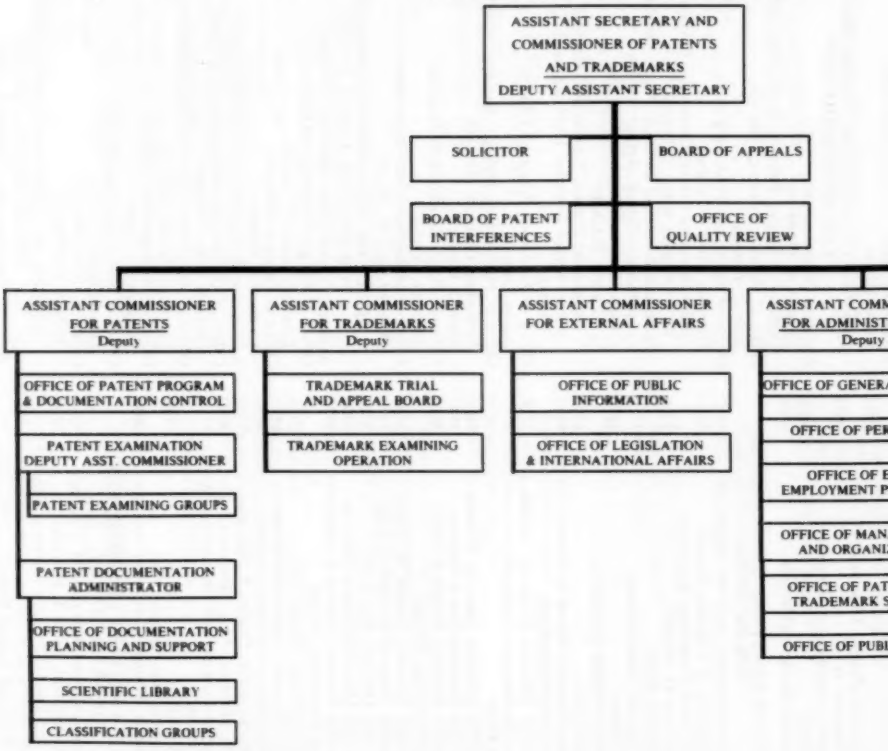
Because Rule 2.88 is seldom invoked and because the issuance of consolidated certificates entails undue administrative effort, the Patent and Trademark Office will soon be publishing for comment a proposal to eliminate the rule.

In the meantime, any applicant seeking registration of a single mark for more than one class of goods and/or services is encouraged to use the multiple-class application procedure set forth in Trademark Rule 2.87, rather than the consolidated application procedure set forth in Trademark Rule 2.88.

MARGARET M. LAURENCE,
July 29, 1981. *Assistant Commissioner for Trademarks.*

[1009 O.G. 17]

U. S. DEPARTMENT OF COMMERCE
PATENT and TRADEMARK OFFICE



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February 28, 1983

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Office of Legislation and International Affairs, Director, (Vacant) 3065

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries see the notice appearing in the *Official Gazette* at 1037 O.G. 12 on Dec. 13, 1983. For use of the European Patent Office as a Searching Authority for PCT applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52 on Sept. 28, 1982.

Domestic PCT fees were increased on Oct. 1, 1982 by a rule change to 37 CFR 1.445 that was published at 1021 O.G. 11 on Aug. 10, 1982. The search fee for the European Patent Office was changed as of Jan. 22, 1983 and was announced at 1025 O.G. 27 on Dec. 28, 1982. International PCT fees were changed by the PCT Assembly effective Jan. 1, 1984 and were announced at 1037 O.G. 12 on Dec. 13, 1983. The current schedule of PCT fees is as follows:

Transmittal fee	$ 125.00
Search fee	
U.S. Patent and Trademark Office as Searching Authority	
· No corresponding prior U.S. national application filed	500.00
· Corresponding prior U.S. national application filed	250.00
European Patent Office as Searching Authority	
· All cases	670.00
International Fees	
Basic Fees (first 30 pages)	295.00
Basic Supplemental Fee (for each page over 30)	6.00
Designation fee (for each national or regional office)	70.00

GERALD J. MOSSINGHOFF,
Nov. 14, 1983. *Commissioner of Patents and Trademarks.*

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

4,073,979, Re. S.N. 545,482, Filed Oct. 26, 1983, Cl. 427/244, METHOD OF APPLYING MODIFYING INGREDIENTS TO OPEN-CELLED POLYURETHANE MATERIAL, Winslow L. Pettingsell, Owner of Record: *Foam Cutting Engineers, Inc., Chicago, Ill.,* Attorney or Agent: Ernest A. Wegner, Ex. Gp.: 162

4,301,013, Re. S.N. 540,281, Filed Oct. 11, 1983, Cl. 210/637, SPIRAL MEMBRANE MODULE WITH CONTROLLED BY-PASS SEAL, Duilio Setti, et al., Owner of Record: *Abcor, Inc., Wilmington, Mass.,* Attorney or Agent: Richard P. Crowley, Ex. Gp.: 176

4,305,987, Re. S.N. 548,905, Filed Nov. 4, 1983, Cl. 428/148, ABRASION RESISTANT LAMINATE, Herbert I. Scher, et al., Owner of Record: *Nevamar Corp., Odenton, Md.,* Attorney or Agent: Karl W. Flocks, et al., Ex. Gp.: 164

4,324,601, Re. S.N. 542,997, Filed Oct. 18, 1983, Cl. 156/69, PREPARATION OF GLASS CONTAINER FOR THERMOPLASTIC CLOSURE, Michael T. Dembicki, et al., Owner of Record: *Brockway Glass, Brockway, Pa.,* Attorney or Agent: Edwin T. Bean, Jr., Ex. Gp.: 161

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

Re. 28,576, Reexam. No. 90/000,472, Requested: Nov. 25, 1983, Cl. 523/336, PROCESS FOR RAPID DISSOLVING WATER-SOLUBLE VINYL ADDITION POLYMERS USING WATER-IN-OIL EMULSIONS, Donald R. Anderson, et al., Owner of Record: *Nalco Chemical Co., Chicago, Ill.,* Attorney or Agent: Henry L. Brinks, Ex. Gp.: 140, Requester: Owner

2,978,437, Reexam. No. 90/000,467, Requested: Nov. 14, 1983, Cl. 525/163, WATER-INSOLUBLE CONDENSATION PRODUCTS OF ALDEHYDES AND INTERPOLYMERS, Roger M. Christenson, Owner of Record: *PPG Industries, Inc., Pittsburgh, Pa.,* Attorney or Agent: Chester A. Johnson, Ex. Gp.: 140, Requester: Sherwin-Williams Co., Cleveland, Ohio

3,037,963, Reexam. No. 90/000,468, Requested: Nov. 14, 1983, Cl. 525/154, RESINOUS MATERIALS, Roger M. Christenson, Owner of Record: *PPG Industries, Inc., Pittsburgh, Pa.,* Attorney or Agent: Chester A. Johnson, Ex. Gp.: 140, Requester: Sherwin-Williams Co., Pittsburgh, Pa.

3,925,206, Reexam. No. 90/000,470, Requested: Nov. 23, 1983, Cl. 210/104, SYSTEM FOR HOME WASTEWATER TREATMENT AND DISPOSAL, Stanley J. Dea, Owner of Record: *Stanley J. Dea, Rockville, Md.,* Attorney or Agent: Jones, Tullar & Cooper, Ex. Gp.: 170, Requester: Owner

4,142,436, Reexam. No. 90/000,469, Requested: Nov. 18, 1983, Cl. 84/1.16, METHOD OF PLAYING STRINGED MUSICAL INSTRUMENT, Emmet H. Chapman, Owner of Record: *Emmett H. Chapman, Los Angeles, Calif.,* Attorney or Agent: Nilsson, Robbins, et al., Ex. Gp.: 210, Requester: Owner

Erratum

The registrant in the following registration, listed in the "Index of Registrants" section of the Trademark Official Gazette of May 10, 1983, was incorrectly identified as Alabe Crafts, Inc. of Cincinnati, Ohio.

743,727	TMOG	May 10, 1983

The registrant's name, city and state are CBS, Inc., New York, N.Y.

MARK M. NEWMAN,
Nov. 28, 1983. *Director, Trademark Examining Operation.*

Erratum

The registrant in the following registration, listed in the "Index of Registrants" section of the Trademark Official Gazette of Mar. 22, 1983, was incorrectly identified as H. Jungheinrich Maschinenfabrik GmbH KG.

740,883	TMOG	Mar. 22, 1983

The registrant's name is H. Jungheinrich Maschinenfabrik GmbH & Co. KG.

MARK M. NEWMAN,
Nov. 28, 1983. *Director, Trademark Examining Operation.*

Erratum

The following registration number was inadvertently canceled in the "Trademark Registrations Canceled, Section 18" section of the Official Gazette listed below:

923,403 TM245 Nov. 8, 1983

Consequently, the above-identified registration is still active.

MARK M. NEWMAN,
Nov. 28, 1983. *Director, Trademark Examining Operation.*

Trademark Examining Operation

Effective Dec. 1, 1983, all requests presented to the Patent and Trademark Office under the provisions of Section 7 of the trademark statute (15 U.S.C. 1057) will be considered by the Post Registration Section of the Trademark Examining Operation.

Necessary telephone inquiries concerning procedure or status should be directed to 703-557-1986.

MARGARET M. LAURENCE,
Dec. 2, 1983. *Assistant Commissioner for Trademarks.*

Extension of Time for Filing Notices of Opposition to Marks Published in the Official Gazette Dated Nov. 29, 1983

Copies of the Official Gazette dated Nov. 29, 1983 were not mailed until Dec. 5, 1983. Therefore, for marks published in the Official Gazette dated Nov. 29, 1983, Notices of Opposition filed by Jan. 4, 1983 will be considered timely.

MARGARET M. LAURENCE,
Dec. 6, 1983. *Assistant Commissioner for Trademarks.*

National Technical Information Service

U.S. GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by agencies of the U.S. Government and are available for licensing in the U.S. in accordance with 35 U.S.C. 207 to achieve expeditious commercialization of results of federally funded research and development. Foreign patents are filed on selected inventions to extend market coverage for U.S. companies and may also be available for licensing.

Technical and licensing information on specific inventions may be obtained by writing to:

Office of Government Inventions and Patents
U.S. Department of Commerce
P.O. Box 1423
Springfield, Va. 22151

Please cite the number and title of inventions of interest.

DOUGLAS J. CAMPION,
Program Coordinator,
Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce.

DEPARTMENT OF AGRICULTURE

SN 6-290,540 (4,410,967). METHOD FOR SAMPLING FLYING INSECT POPULATIONS USING LOW-FREQUENCY SOUND DETECTING AND RANGING IN CONJUNCTION WITH A BIOLOGICALLY ACTIVE CHEMICAL/PHEROMONE.

SN 6-345,512 (4,410,625). SALT-TOLERANT MICROBIAL XANTHANSE AND METHOD OF PRODUCING SAME.

SN 6-456,930. APPARATUS AND METHOD OF MEASURING EDGEWISE COMPRESSION DEFORMATION.

SN 6-456,954. NOVEL STRAIN OF CORYNEBACTERIUM FASCIANS AND USE THEREOF TO REDUCE LIMONOID IN CITRUS PRODUCTS.

SN 6-461,299. SYNTHETIC PHEROMONE 10-METHYL-2-TRIDECANONE AND ITS USE IN CONTROLLING THE SOUTHERN CORN ROOTWORM AND RELATED DIABROTICITES.

SN 6-464,530. A DICARBAMOYLSULFONATE TANNING AGENT.

SN 6-467,068. METHOD AND APPARATUS FOR MEASURING PRESS ROLL CLEARANCE.

SN 6-473,397. PROCESS AND APPARATUS FOR SIMULATING A ROLLING AND DRYING OPERATION.

SN 6-488,530. INSECT REPELLENTS.

SN 6-500,049. 2-ACETYL-1-PYRROLINE AND ITS USE FOR FLAVORING FOODS.

SN 6-506,079. PROCESS AND APPARATUS FOR DRYING PAPER AT ELEVATED TEMPERATURE AND PRESSURE.

SN 6-506,952. METHOD FOR THE PREPARATION OF MYCOHERBICIDE-CONTAINING PELLETS.

SN 6-507,191. STARCH-BASED SEMIPERMEABLE FILMS.

SN 6-508,204. FLOATING DISCS FOR IMPROVED FURROW OPENING FOR CONSERVATION PLANTERS.

SN 6-518,779. ABRASION-RESISTANT DURABLE-PRESS ACRYLIC FINISHES FOR COTTON TEXTILES BY USE OF NONOXIDATIVE POLYMERIZATION INITIATORS AND ACCELERATORS IN TWO-STAGE HEAT CURING.

SN 6-519,786. PROCESS FOR RECYCLING AND DISPOSAL OF DYE SOLUTIONS.

SN 6-525,917. DIRECT FERMENTATION OF CELLODEXTRINS TO ETHANOL BY CANDIDA WICKERHAMII.

SN 6-526,751. PROCESS FOR REINFORCED YARN WITH GLASS FIBER.

SN 6-526,752. MILD-CURE FORMALDEHYDE-FREE DURABLE-PRESS FINISHING OF COTTON TEXTILES WITH GLYOXAL AND GLYCOLS.

SN 6-526,753. METHOD OF DEBITTERING CITRUS JUICE WITH CYCLODEXTRIN POLYMERS.

SN 6-527,730. ELECTRODYNAMIC METHOD FOR SEPARATING COMPONENTS.

SN 6-527,894. ZINC PYRITHIONE PROCESS TO IMPART ANTIMICROBIAL PROPERTIES TO TEXTILES.

SN 6-532,431. OVIPOSITIONAL STIMULANT FOR TRICHOGRAMMA SPP.

SN 6-534,015. PRODUCTION OF DEFATTED SOYBEAN PRODUCTS BY SUPERCRITICAL FLUID EXTRACTION.

SN 6-534,178. IRRADIATION ALCOHOL FERMENTATION PROCESS.

SN 6-539,025. CONTROL OF MYCOTOXIN PRODUCTION BY CHEMICALLY INHIBITING FUNGAL GROWTH.

SN 6-539,028. SELECTION PROCEDURE FOR OBTAINING NATURALLY OCCURRING LACTIC ACID BACTERIA OR THEIR MUTANTS WHICH DO OR DO NOT PRODUCE CARBON

DIOXIDE FROM MALIC ACID.
SN 6-539,860. SOLUBILIZATION OF DRY PROTEIN IN AQUEOUS OR ACIDIC MEDIA AFTER TREATMENT WITH CONCENTRATED HYDROGEN PEROXIDE.

DEPARTMENT OF HEALTH & HUMAN SERVICES

SN 6-265,469 (4,410,700). PREPARATION OF CHIRAL 1-BENZYL-1,2,3,4-TETRAHY-DROSIOQUINOLINES BY OPTICAL RESOLUTION.
SN 6-330,020 (4,410,630). LYSIS FILTRATION CULTURE CHAMBER.
SN 6-511,108. NOVEL PLASMID PJL6.
SN 6-527,490. CONSTRUCTION AND CHARACTERIZATION OF A STRAIN OR RECOMBINANT WHICH OVERPRODUCES ECORI ENDONUCLEASE AND METHYLASE.

DEPARTMENT OF THE AIR FORCE

SN 6-195,147 (4,405,203). ATMOSPHERIC DISPERSION CORRECTOR.
SN 6-256,373 (4,403,196). PULSE WIDTH MODULATED POWER AMPLIFIER WITH DIFFERENTIAL CONNECTING LINE VOLTAGE DROP COMPARATORS.
SN 6-259,761 (4,404,055). ELASTOMERIC SEAL.
SN 6-311,379 (4,403,813). ROLLER BEARING CAGE DESIGN.
SN 6-326,973 (4,406,800). GREASE COMPOSITION CONTAINING POLY(ALPHA-OLEFIN).
SN 6-347,381 (4,406,863). INTEGRATED SOLID PROPELLANT GAS GENERATOR AND FLUID HEAT EXCHANGER.
SN 6-403,247. MEASUREMENT OF VISUAL CONTRAST SENSITIVITY.
SN 6-433,171 (4,406,627). WAVEFORM SIMULATOR FOR AN ELECTRONIC SYSTEM MAINTENANCE TRAINER.
SN 6-445,886 (4,402,836). METHOD FOR TREATING CONTAMINATED WASTEWATER.
SN 6-482,754. RAIN RATE METER.
SN 6-504,183. EMI FILTER CAPACITOR UNIT.
SN 6-505,165. MULTIPLE TASK ORIENTED PROCESSOR.
SN 6-528,309. MINIATURE CELL ADAPTOR TO ACCOMMODATE SMALL SAMPLES IN RESISTIVITY CELLS.
SN 6-529,078. DIRECTIONAL ANTENNA SYSTEM HAVING SIDELOBE SUPPRESSION.
SN 6-529,179. TESTING APPARATUS FOR QUANTITATIVELY MEASURING CREEPATILITY OF LIQUIDS.
SN 6-529,412. PROTECTION CIRCUITRY FOR HIGH VOLTAGE DRIVES.

DEPARTMENT OF THE ARMY

SN 6-489,969. METHOD FOR MAKING A RADIAL FLOW CERAMIC ROTOR FOR ROTARY TYPE REGENERATOR HEAT EXCHANGE APPARATUS; AND ATTENDANT CERAMIC ROTOR CONSTRUCTIONS.
SN 6-508,783. PULSE-TYPE CLEANING MEANS FOR FILTER PANELS.
SN 6-514,984. MOTORIZED WHEELS FOR DOLLY STRUCTURES.
SN 6-519,876. VARIABLE SPEED DRIVE.
SN 6-533,183. MULTILEVEL NOISE CODE MATE PAIR GENERATION AND UTILIZATION OF SUCH CODES.
SN 6-536,064. EXPANDED MULTILEVEL NOISE CODE GENERATOR EMPLOYING BUTTING.

DEPARTMENT OF THE INTERIOR

SN 6-376,065 (4,410,496). RECOVERY OF METAL VALUES FROM COMPLEX SULFIDES.

PATENT NOTICES

Certificates of Correction for the Week of Jan. 3, 1984

4,036,096	4,377,865	4,403,281	4,408,370
4,179,734	4,381,421	4,403,573	4,408,865
4,239,890	4,386,140	4,404,109	4,409,100
4,243,996	4,387,954	4,404,566	4,409,152
4,264,828	4,390,288	4,404,649	4,409,230
4,293,548	4,390,496	4,404,843	4,409,543
4,302,654	4,390,527	4,405,107	4,409,673
4,313,160	4,391,499	4,405,470	4,410,047
4,324,869	4,392,781	4,405,520	4,410,340
4,331,948	4,392,950	4,405,655	4,410,604
4,338,225	4,392,961	4,405,786	4,410,645
4,349,695	4,392,980	4,406,296	4,410,753
4,354,103	4,393,847	4,406,872	4,411,327
4,361,293	4,393,863	4,407,099	4,411,601
4,369,232	4,393,965	4,407,226	4,411,803
4,370,860	4,394,662	4,407,272	4,412,391
4,371,392	4,395,118	4,407,410	4,412,465
4,372,889	4,395,687	4,407,491	4,412,730
4,373,019	4,396,280	4,407,526	4,412,806
4,374,967	4,398,603	4,407,530	4,412,826
4,375,756	4,399,036	4,407,717	4,413,247
4,376,104	4,399,462	4,407,745	4,413,344
4,376,773	4,402,108	4,407,829	4,414,208
4,376,888	4,402,591	4,407,877	4,414,469
4,377,524	4,402,669	4,408,054	4,414,661

Disclaimers

4,234,585.—*Werner Winter,* Heppenheim; *Walter-Gunar Friebe,* Darmstadt; *Wolfgang Kampe,* Heddesheim; *Androniki Roesch,* Mannheim and *Otto-Henning Wilhelms,* Weinheim-Rittenweier, all of Fed. Rep. of Germany. 1,2-DIHYDROQUINOLINE-2-ONE DERIVATIVES. Patent dated Nov. 18, 1980. Disclaimer filed Mar. 21, 1983, by the assignee, *Boehringer Mannheim GmbH.*

Hereby enters this disclaimer to claims 1, 2, 7 and 8 of said patent.

4,350,922.—*Carmen A. Catanese,* Rocky Hill, and *Stanley Bloom,* Bridgewater, N.J. MULTICOLOR CATHODE-RAY TUBE WITH QUADRUPOLAR FOCUSING COLOR-SELECTION STRUCTURE. Patent dated Sept. 21, 1982. Disclaimer filed Nov. 16, 1983, by the assignee, *RCA Corp.*

Hereby enters this disclaimer to all claims of said patent.

Dedication

3,751,618.—*Don M. Hallerberg,* Huntington Beach, Calif. PUSH-SWITCH WITH SPRING BIASED PLUNGER. Patent dated Aug. 7, 1973. Dedication filed June 30, 1982, by the assignee, *Hi-Tek Corp.*

Hereby dedicates to the Public the remaining term of said patent.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

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CONDITION OF PATENT APPLICATIONS AS OF April 2, 1983

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director ..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	1-16-81
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director ..... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	11-20-81
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director .... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	3-1-82
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director ..... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	3-09-82
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ELECTRICAL EXAMINING GROUPS	
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RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director ..... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	5-12-81
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director ..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	8-25-80
DESIGN, GROUP 290—KENNETH L. CAGE, Director ..... Industrial Arts; Household, Personal and Fine Arts.	1-30-81
MECHANICAL EXAMINING GROUPS	
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AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director ..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	8-27-82
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GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director ..... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	9-17-80

Expiration of patents: The patents within the range of numbers indicated below expire during April 1983, except those which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,243,822 to 3,248,737, inclusive

Plant Patents ..... Numbers 2,616 to 2,627 inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED JANUARY 3, 1984

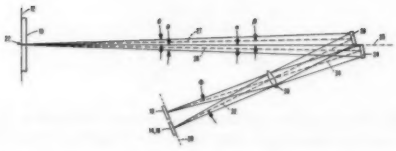
Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent and Trademark Office makes no assertion as to the novelty of the disclosed subject matter.

T103,801
MIRROR MULTIPLEXOR FOR LINEAR IMAGE SENSORS

Duane E. Grant, 445 S. 68th St., Boulder, Colo. 80303, and Randall A. Maddox, 416 Woodview Dr., Lexington, Ky. 40509

Continuation of Ser. No. 152,442, May 22, 1980, abandoned.
This application Aug. 23, 1982, Ser. No. 410,723
Int. Cl.³ H01J *40/14*
U.S. Cl. 250—578
2 Sheets Drawing. 20 Pages Specification



An optical apparatus and method for multiplexing (that is splitting) an optical ray or rays emanating from a line object disposed at the platen of a scanner. The procedure enables multiple images of a line object to be formed at the image plane. The apparatus includes a plurality of fixed and movable mirrors disposed to fold the rays along separate optical axis through a common lens onto a plurality of linear photosensitive arrays. The arrays are disposed at the image plane of the scanner. The arrays are configured with the centers of each array being disposed symmetrical with respect to the principal axis of the lens.

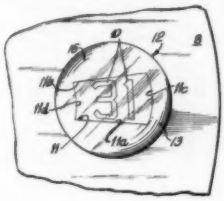
In one embodiment a plurality of optical filters are disposed so that each filter intercepts one of the optical axis exiting from the lens. The rays which are associated with each axis pass through the filters onto the linear photosensitive arrays. The configuration is ideally suited for use in a single pass color scanner.

T103,802
MAGNIFICATION LENS FOR DATE DIAL IN A WRISTWATCH

Joseph Rinaldi, 38 Old Colony Dr., Watertown, Conn. 06795

Filed Sep. 27, 1982, Ser. No. 423,887
Int. Cl.³ G02B *27/02*
U.S. Cl. 350—114
1 Sheets Drawing. 7 Pages Specification

A magnification lens (12) is disclosed which fits into and is retained in a window (11) in the dial of a calendar wristwatch



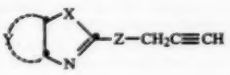
and is arranged to magnify indicia (10) on a date ring rotatable beneath the window.

T103,803
PHOTOGRAPHIC SPEED INCREASING AND LATENT IMAGE STABILIZING COMPOUNDS, SILVER HALIDE EMULSIONS, AND PHOTOGRAPHIC ELEMENTS

Roger Lok, Hilton; John P. Freeman, Rochester, and William N. Baum, Henrietta, all of N.Y.

Division of Ser. No. 320,794, Nov. 11, 1981, Pat. No. 4,378,426.
This application Aug. 16, 1982, Ser. No. 408,536
Int. Cl.³ C07D *277/82, 263/58, 235/30*
U.S. Cl. 548—121
No Drawing. 22 Pages Specification

Photographic silver halide emulsions show increased speed and reduced latent image fading when a compound of the following structure is incorporated:

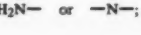


wherein:

X is —O—, —S—, —Se—, or

Y represents the atoms completing a fused aromatic nucleus;

Z is



and

R is hydrogen or lower alkyl of from 1 to 5 carbon atoms.

REISSUES

JANUARY 3, 1984

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 31,479

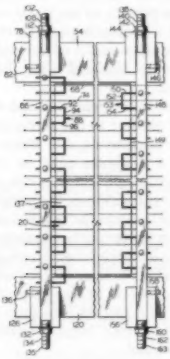
HOT WIRE TONGUE AND GROOVE CUTTING APPARATUS

David L. Lewis, 9 Candee Rd., Prospect, Conn. 06712

Original No. 4,221,148, dated Sep. 9, 1980, Ser. No. 23,019, Mar. 22, 1979. Application for reissue Sep. 29, 1982, Ser. No. 427,159

Int. Cl.³ B26F *3/12*

U.S. Cl. 83—869 **17 Claims**



1. A hot-wire cutting apparatus for cutting a plurality of grooves in a foamed synthetic resin workpiece having a first face and a second, substantially planar, face extending substantially perpendicularly to the first face, comprising:

a. a support structure providing a bed surface that defines a substantially horizontal bed plane;

b. guide means mounted on said support structure adjacent said bed surface and providing a guide surface defining a cutting plane extending at a right angle to said bed plane for guiding the workpiece when its first and second faces are in abutting relationship with said bed and guide surfaces, respectively, said bed surface and said guide surface defining a path of travel in a direction parallel to the line of intersection of said bed plane and said cutting plane;

c. groove-cutting-wire mounting means mounted on said support structure adjacent said bed surface and said guide means;

d. at least one groove-cutting wire mounted on said groove-cutting-wire mounting means to provide a plurality of generally U-shaped operative portions vertically spaced from each other and from said bed surface, each of said operative portions extending through said cutting plane with its leg portions vertically spaced apart and its web portion disposed inwardly of said cutting plane above said bed plane; and

e. means electrically connected to said groove-cutting wire and adapted for connection to a voltage source for applying voltage from said voltage source to said groove-cutting wire to cause current to flow through said groove-cutting-wire operative portions and thereby to heat said operative portions, said operative portions thereby tending to cut vertically spaced grooves extending longitudinally in the direction of said path of travel in the second face of the associated workpiece when the first and second faces of the associated workpiece are in abutting relationship with said bed and guide surfaces, respectively, and the workpiece is moved in the direction of said path of travel past said groove-cutting wires.

Re. 31,480

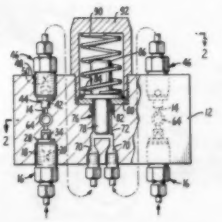
FLUID CONTROL APPARATUS

Emery Major, 1210 Brickyard Cove Rd., Point Richmond, Calif. 94801

Original No. 4,313,464, dated Feb. 2, 1982, Ser. No. 91,726, Nov. 6, 1979. Application for reissue Mar. 26, 1982, Ser. No. 362,111

Int. Cl.³ F04B *11/00*

U.S. Cl. 137—544 **9 Claims**



1. Fluid control apparatus comprising in combination:

mounting means;

at least one inlet check valve assembly mounted on said mounting means;

at least one [inlet] *outlet* check valve assembly mounted on said mounting means in fluid flow communication with said inlet check valve assembly, each of said check valve assemblies including a movable valve member and a valve seat cooperable to permit passage of fluid therethrough in a predetermined direction;

filter means operatively associated with each of said check valve assemblies for removing particulate matter from liquid passing through said check valve assemblies; and

a pulse damper device comprising a primary housing interior defined by said mounting means in fluid flow communication with said outlet check valve assembly and a dispenser orifice formed in said mounting means, a piston including a ram portion slidably positioned in said primary housing interior and responsive to fluid pressure in said primary housing interior to move away from said dispenser orifice, a coil compression spring continuously urging said piston toward said dispenser orifice, and a spring housing mounted on said mounting means for accomodating said coil compression spring and having a bearing surface maintaining said spring in compression against an element of said piston, seal means disposed between said primary housing and said spring housing and having an aperture within which said piston ram portion is slidably disposed, said seal means maintaining the housing interior, the coil compression spring and the piston element out of contact with said fluid.

Re. 31,481

SHEAR TYPE TREE CUTTING DEVICE

Joseph S. Choat, Rte. 1, Box 358, Odenville, Ala. 35120

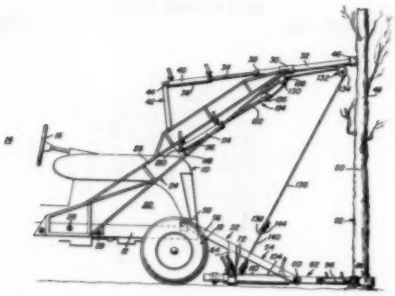
Original No. 3,493,020, dated Feb. 3, 1970, Ser. No. 611,936, Jan. 26, 1967. Application for reissue Oct. 1, 1979, Ser. No. 80,307

Int. Cl.³ A01G *23/08*

U.S. Cl. 144—34 E **4 Claims**

8. A tree cutting device comprising a frame, said frame including a jaw means adapted to clampingly engage a cylindrical object specifically oriented adjacent said jaw means, and means carried by said frame adapting the latter to be supported

for oscillation about a horizontal axis through an arc of at least generally ninety degrees whereby said frame may be swung from a position in which said jaw means may grip an upright tree to a position in which said jaw means may grip a horizontally disposed tree portion, said means adapting said frame to be supported for oscillation about a horizontal axis being operable to locate said axis spaced from but adjacent said jaws whereby the radius of the arc of swinging movement of said jaw means during oscillation of said frame will not be excessively great so as to limit freedom of oscillatory movement of said frame in heavily wooded areas, said frame being elongated and said jaw means being disposed at one end thereof, said frame including a shear-type cutting blade mounted thereon



for reciprocal movment therealong between an inactive position remote from said jaw means and an active position cooperable with said jaw means to shear a tree member clampingly engaged by said jaw means, said means carried by the leading end of said platform including generally horizontal arm means pivotally secured at one end to said platform for movement about a horizontal axis extending transversely of said arm means and with the other end of said arm means projecting outwardly of said platform, said frame being pivotally supported from the other end of said arm means for rotation about a horizontal axis extending transversely of said arm means, said means connected between said arm means and said platform including an elongated tension member supported at one end from said platform and secured to said frame at its other end.

Re. 31,482

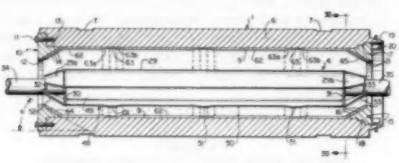
METHOD FOR CENTRIFUGAL CASTING AND ARTICLES SO PRODUCED

Charles H. Noble, 2307 Manassas Dr., Birmingham, Ala. 35213

Original No. 4,124,056, dated Nov. 7, 1978, Ser. No. 778,705, Mar. 17, 1977. Application for reissue Oct. 31, 1980, Ser. No. 202,755

Int. Cl.³ B22D *13/02*; B22C *3/00, 13/10*

U.S. Cl. 164—114 **21 Claims**



1. In the production of tubular metal articles by centrifugal casting in a hollow metal mold having an active mold surface which is of circular cross-section transverse to the axis of mold rotation, the improvement comprising

introducing into the mold a quantity consisting essentially of a dry finely particulate binderless free flowing *milled* refractory material, said refractory material being inert at the temperature of the molten metal to be cast and having a melting point significantly higher than the temperature of the molten metal to be cast, a specific gravity of at least 2.25, and a particle size such that at least 95% of the particles have a maximum dimension not exceeding 105 microns;

rotating the mold to distribute said quantity of refractory material centrifugally and thereby establish over the entire active surface of the mold a layer of said refractory material which is thicker than desired for casting;

densifying the layer of refractory particulate material by rotating the mold at a rate such that the particulate refractory material is subjected to centrifugal force adequate to establish an equivalent specific gravity, determined by multiplying the actual specific gravity of the refractory material by the number of gravities of centrifugal force, or at least 7.5; contouring the inner surface of said layer, to the form desired for the article to be cast, by positioning against the inner portion of the layer, while continuing to rotate the mold, a contouring tool having a working edge which extends longitudinally of the mold and which has a longitudinal profile identical with that desired for the article to be cast,

said quantity of refractory material, and the position of said contouring tool relative to the active mold surface, being such that, after contouring, the thinnest portion of said layer will have a thickness equal to at least 5 times the maximum dimension of the particles of the [predominent] *predominant* fraction of the particulate material and significantly greater than the maximum dimension of the largest particle in the particulate material [;] *, the particles of the layer, after densifying and contouring the layer, being so packed together in the layer that the voids at the surface of the layer are too small to be entered by the molten metal;*

rotating the mold at a casting rate such as to apply to the densified and contoured layer a centrifugal force of at least 10 gravities; and

introducing the molten metal for casting while continuing to rotate the mold at said casting rate, rotation of the mold being continued at said casting rate at least until the molten metal has covered the inner surface of the densified layer of refractory material.

Re. 31,483

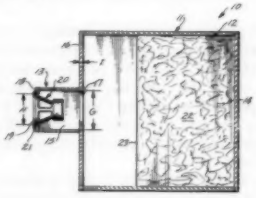
LOUDSPEAKER ENCLOSURE WITH ENHANCED BASS RESPONSE

John O. Hruby, Jr., 1240 Alta Paseo, Burbank, Calif. 91501

Original No. 4,139,076, dated Feb. 13, 1979, Ser. No. 873,235, Jan. 30, 1978. Continuation of Ser. No. 212,986, Dec. 4, 1980, abandoned. Application for reissue Oct. 25, 1982, Ser. No. 436,628

Int. Cl.³ H04R *1/28*

U.S. Cl. 181—151 **15 Claims**



14. A loudspeaker enclosure comprising for each loudspeaker mountable to the enclosure, a primary chamber defining a principal interior volume and a secondary chamber defining a minor interior volume substantially smaller than the principal interior volume, the primary chamber having a front wall with outer and inner faces, the inner face forming a front boundary of selected height and width dimensions for the principal volume, the second-

ary chamber being defined by an elongated housing essentially permanently sealed to the front wall of the primary chamber and projecting beyond one of the faces of the primary chamber front wall, said housing defining a speaker mounting opening which opens essentially directly to the exterior of the enclosure from a front boundary of the minor volume, said housing defining a second simple opening disposed substantially coaxial with the speaker mounting opening at a rear boundary of the minor volume and which opens through the minor volume rear boundary to the principal volume, the second opening providing simple and direct communication between the principal and minor volumes, the minor volume at the second opening having height and width dimensions which are less than and are in directions respectively parallel to the height and width dimensions of the principal volume front boundary.

Re. 31,484

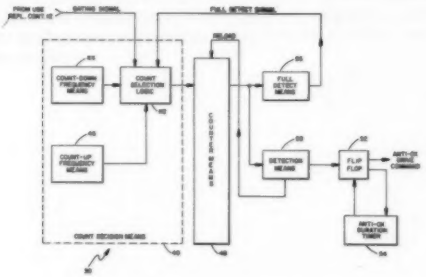
ANTI-OXIDATION FLUID REPLENISHER CONTROL SYSTEM FOR PROCESSOR OF PHOTOSENSITIVE MATERIAL

Theodore A. Melander, and Ralph L. Charnley, both of Minneapolis, Minn., assignors to Pako Corporation, Minneapolis, Minn.

Original No. 4,174,169, dated Nov. 13, 1979, Ser. No. 882,804, Mar. 2, 1978. Application for reissue Feb. 13, 1981, Ser. No. 234,388

Int. Cl.³ G03D *3/06*

U.S. Cl. 354—324 **31 Claims**



1. A control system for controlling anti-oxidation replenisher means to provide anti-oxidation fluid to a processor of photosensitive material, the control system comprising:

count decision means responsive to whether use-related chemical replenishment is occurring within the processor for providing a first signal when use-related chemical replenishment is not occurring and a second signal when use-related chemical replenishment is occurring;

counter means operatively coupled to the count decision means for holding a first predetermined value and for counting in one direction in value whenever the count decision means provides the first signal and for counting in the opposite direction in value whenever the count decision means provides the second signal; and

detection means operatively coupled to the counter means for detecting the occurrence of a second predetermined value in the counter means and for causing the anti-oxidation replenisher means to initiate anti-oxidation fluid replenishment.

Re. 31,485

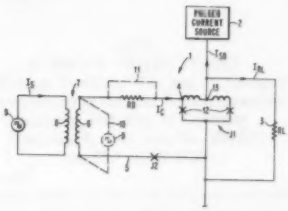
WAVEFORM TRANSITION SENSITIVE JOSEPHSON JUNCTION CIRCUIT HAVING SENSE BUS AND LOGIC APPLICATIONS

Sadeg M. Faris, Yorktown Heights, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Original No. 4,149,097, dated Apr. 10, 1979, Ser. No. 865,815, Dec. 30, 1977. Application for reissue Apr. 9, 1981, Ser. No. 252,657

Int. Cl.³ H03K *19/195, 5/153*

U.S. Cl. 307—476 **45 Claims**



1. A waveform transition sensitive circuit comprising:

a device capable of carrying Josephson current,

a current source connected to said device to provide current flow therein of a given polarity,

a utilization circuit connected to said device,

at least a source of current pulses each of said pulses undergoing at least a pair of waveform transitions, and

means connected to said device and said at least a source of current pulses responsive to said at least a pair of waveform transitions for generating at least transition currents of said given polarity and of a polarity opposite to said given polarity in said device to switch it and deliver said current to said utilization device when said current in said device and a transition current of said at least transition currents are of the same polarity.

Re. 31,486

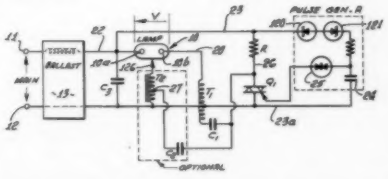
RAPID STARTING OF GAS DISCHARGE LAMPS

James G. Helmuth, Monrovia, Calif., assignor to Chadwick-Helmuth Company, Inc., El Monte, Calif.

Original No. 3,944,876, dated Mar. 16, 1976, Ser. No. 510,440, Sep. 30, 1974. Application for reissue May 20, 1982, Ser. No. 380,074

Int. Cl.³ H05B *41/16, 41/24*

U.S. Cl. 315—205 **14 Claims**



1. In a starting device for a gas discharge lamp to which main AC voltage is supplied via lamp electrodes,

a. first means electrically connected with at least one lamp electrode to apply to the lamp a *succession of transient voltage pulses of declining amplitudes* [transient voltage pulse] which initially [changes] *change* in amplitude in a polarity direction relatively in opposition to the polarity of the main voltage simultaneously supplied to *at least one of* the electrodes,

b. said first means including circuitry to cause said [pulse] *pulses* to thereafter change in amplitude in a polarity direction in aid of the polarity of the main voltage simultaneously supplied to *at least one of* the electrodes, whereby the lamp may be re-started when hot.

PLANT PATENTS

GRANTED JANUARY 3, 1984

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

5,168
ROSE PLANT CV. AROCAD

Herbert C. Swim, and Jack E. Christensen, both of Ontario, Calif., assignors to Armstrong Nurseries, Inc., Ontario, Calif.

Filed Jun. 22, 1982, Ser. No. 390,924
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—16 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, being particularly characterized in its rich apricot flower coloration, its plant vigor, and the abundance of large, well-formed flowers produced on strong stems of a length suitable for cutting.

5,169
BEGONIA PLANT NAMED CONNIE

Erland V. Schelbeck, Odense, Denmark, assignor to L. Daehnfeldt Ltd., Odense, Denmark

Filed Sep. 20, 1982, Ser. No. 420,500
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct cultivar of begonia known by the cultivar name Connie, as described and illustrated, and particularly characterized by its double rose-red flowers which are up to 5 cm. in diameter; medium size dark green glabrous leaves; upright and compact growth habit; ease of propagation; excellent and continuous flowering year round, and excellent keeping qualities.

5,170
AFRICAN VIOLET PLANT

Reinhold Holtkamp, Isselburg, Fed. Rep. of Germany, assignor to Gesellschaftsvertrag uber die Erfindergemeinschaft "OPTIMARA", Isselburg, Fed. Rep. of Germany

Filed Sep. 9, 1981, Ser. No. 300,629
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—69 **1 Claim**

1. A new and distinct cultivar of African violet plant known by the cultivary name Rhode Island and particularly characterized by the combined features of intensive pink flower color, with a somewhat darker pink center; profuse blooming habit providing a corolla which appears rather fluffy during full bloom; dark green shiny leaves; excellent growth habit, producing up to 15 flower stems, each of which contains up to 12 or more flowers per stem, with the flowers being long lasting and non-dropping, and by its ability to provide a saleable plant within 8 weeks after potting.

5,171
TOMATO PLANT

Carroll G. Briggs, San Juan Bautista, Calif., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Jan. 20, 1982, Ser. No. 340,956
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—89 **1 Claim**

1. A new and distinct variety of a hybrid tomato plant substantially as herein shown and described.

PATENTS

GRANTED JAN. 3, 1984

ERRATA

For CLASS	See PATENT NO.
502–162	4,424,138
502–117	4,424,139
502–155	4,424,140
502–205	4,424,141
502–084	4,424,142
502–225	4,424,143
502–068	4,424,144
424–308	4,424,374
549–407	4,424,389
549–483	4,424,390
549–525	4,424,391
556–436	4,424,392
560–021	4,424,393
560–105	4,424,394
560–133	4,424,395
562–456	4,424,396
568–473	4,424,397
568–589	4,424,398
568–840	4,424,399
381–039	4,424,415
381–024	4,424,416
219–205	4,424,422
073–646	4,424,511
364–131	4,424,559
372–089	4,424,585
372–079	4,424,592

PATENTS

GRANTED JANUARY 3, 1984

GENERAL AND MECHANICAL

4,423,523

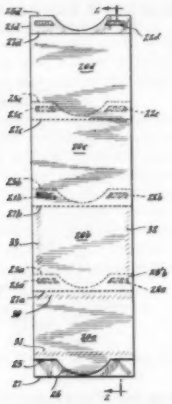
OVERLAPPING BIBS ON STRIP

Beverly B. Bodner, 5914 Carell Ave., Agoura, Calif. 91301, and Bonnie J. Liebmann, 290 Mountain Home Rd., Woodside, Calif. 94062

Continuation of Ser. No. 300,520, Sep. 21, 1981, abandoned. This application Jul. 30, 1982, Ser. No. 404,516

Int. Cl.³ A41D *27/12*

U.S. Cl. 2—49 R **19 Claims**



1. Apparel for covering at least part of the clothing on a person for keeping said clothing clean, said apparel comprising:

a first panel having absorbent characteristics,

a second panel having non-absorbent characteristics, said first panel and said second panel being substantially the same size, said first panel and said second panel combined at least in part for forming a unitary article,

said first panel and said second panel offset from each other so that the upper part of said first panel is free from said second panel and the lower part of said second panel, is free from said first panel,

means coupled to said upper part of said first panel said means having adhesive characteristics on its face for securing said apparel to said person's clothing.

4,423,524

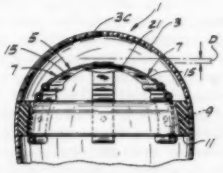
SUSPENSION SYSTEM FOR HEADGEAR

Douglas R. Kralik, and Hal D. Mitchell, both of Rolla, Mo., assignors to A-T-O Inc., Willoughby, Ohio

Filed Feb. 26, 1981, Ser. No. 238,230

Int. Cl.³ A42B *3/02*

U.S. Cl. 2—416 **22 Claims**



14. A shock attenuation system comprising strap means of a substantially inextensible material having pocket means therein for permitting extension and contraction, and elastically deformable means receivable in said pocket means, said elastically deformable means being adapted elastically to deform when tension is applied to the strap means to extend it, as when an impact load is applied to the system, the deformation of said means serving to attenuate the shock from said applied impact load, said elastically deformable means being adapted to return sustantially to its undeformed shape when said tension is removed from the strap means upon termination of said impact load thereby to effect contraction of said strap means, said pocket means comprising a pair of pockets extending generally transversely of the strap means, said elastically deformable means comprising a pair of elastically deformable members receivable in said pockets, said members being selectively removable from their respective pockets for varying the length of the strap means and for permitting visual inspection of the members.

4,423,525

HEART VALVE PROSTHESIS

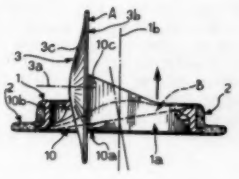
Franco Vallana, and Gioachino Bona, both of Turin, Italy, assignors to Sorin Biomedica S.p.A., Saluggia, Italy

Filed Oct. 22, 1981, Ser. No. 313,843

Claims priority, application Italy, Jul. 14, 1981, 67972 A/81

Int. Cl.³ A61F *1/22*

U.S. Cl. 3—1.5 **1 Claim**



1. A heart valve prosthesis comprising an annular frame, a disc-shaped obturator, and means for coupling the obturator to the annular frame which allow the obturator to rotate around its central axis and to orient itself about one of its chordal axes, under the action of the blood flow, between an open angular position and a closed angular position so as to allow the free flow of blood through the aperture of the annular frame in one direction and the interruption of the flow in the opposite direction, respectively, wherein said coupling means are such as to enable the obturator to orient itself perpendicular to the plane of the frame in the open angular position, and the side of the obturator which faces away from the central axis of the annular frame in the open angular position is defined, at least over a major portion of its peripheral part, by a surface which is generated by rotation about the central axis of the obturator, of a curve, the locus of centres of curvature of which lies at a finite distance on the opposite side of said curve from a curve which generates, by rotation about said central axis of the obturator, a surface defining the other side of the obturator, whereby, when the obturator is in the open angular position, blood flowing through the aperture of the annular frame is smoothly deflected over and around the obturator.

4,423,526

RESILIENT GASKET BETWEEN TOILET BOWL AND DRAINPIPE

Lewis B. Izzi, Sr., Shelby, N.C., assignor to Plastic Oddities, Inc., Shelby, N.C.

Filed Apr. 21, 1982, Ser. No. 370,187
Int. Cl.³ E03D *11/10, 11/16;* F16J *15/12*
U.S. Cl. 4—252 R **5 Claims**

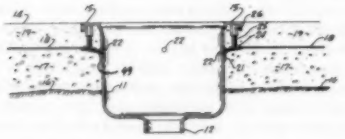
1. A gasket sealing device for fitting inside a rigid generally cylindrical shell member for connecting a toilet bowl with an outlet horn to a drain pipe, said shell member having a circumferential flange surrounding a central opening connection to a drain pipe and with bolt holes through the flange for mounting the flange and drain pipe firmly to a floor and for supporting the toilet bowl on the flange, the sealing device for fitting concentrically between the toilet bowl and inner surface of the shell member for preventing the escape of odors from the seal between a toilet bowl mounted on the flange and the drain pipe, comprising in combination, a flexible disc of sealant material having a memory that causes it to attain its original shape after being flexed, said disc having a diameter great enough to substantially cover said flange with bolt holes on opposite sides of the disc in registration with bolt holes of the flange, said disc further having a central opening for extending inside the shell central opening and shaped for receiving thereinto the toilet bowl outlet horn in frictionally contacting sealing engagement to flexibly engage the toilet bowl horn and conform to its shape thereby to keep odors from escaping from the drain pipe through the sealing engagement, whereby the toilet bowl can be removed and replaced and thereby still attain a frictional leakproof seal even if not exactly replaced in the same position because of the sealant material memory without requiring replacement of the disc, and whereby the location of the disc may be retained in place and centered on the flange by means of the registered bolt holes.

4,423,527

FABRICATED FLOOR DRAIN WITH COMBINATION ANCHORING AND SEEPAGE CONTROL FLANGE

Earl L. Morris, La Habra Heights, and V. Walter Hafner, Whittier, both of Calif., assignors to Acorn Engineering, City of Industry, Calif.

Filed Sep. 29, 1982, Ser. No. 428,405
Int. Cl.³ E03C *1/26*
U.S. Cl. 4—288 **12 Claims**



1. A fabricated floor drain for waste reception comprising:

a receptor body having an outwardly extending top rim extending around the top thereof, side walls and a bottom outlet;

flange means sealingly affixed about the entire exterior of the side walls of the receptor body just above the point at which said flange means meets the wall; and

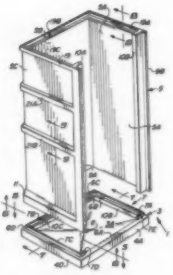
membrane clamp means held against the under surface of the top rim, said membrane clamp means having two ends, the first end having at least one clamp bar which abuts the upper surface of membrane to be held against the flat shelf portion of the flange means and the second end of the clamp means being held against the under surface of the top rim and not protruding above said top rim.

4,423,528

TWO PIECE MOLDED FIBERGLASS SHOWER UNIT

Charles A. Wiedmeier, 3323 W. Cypress, Phoenix, Ariz. 85009

Continuation of Ser. No. 112,083, Jan. 14, 1980, abandoned. This application May 3, 1982, Ser. No. 374,444
Int. Cl.³ A47K *3/22*
U.S. Cl. 4—613 **5 Claims**



1. A two-piece molded fiberglass shower unit comprising in combination:

(a) a base section, said base section including a floor surface, a drain hole extending through the floor surface, a wall surrounding and continuous with said floor surface, a continuous top surface of said wall, and a continuous sealing ridge extending vertically from said top surface, said sealing ridge extending along a substantial portion of said top surface and leaving a gap corresponding to an entryway of said shower unit; and

(b) a unitary wall section for attachment to said base section, said unitary wall section bounding a volume and having a side opening corresonding to and partially bounding the entry way of said shower unit, said unitary wall section including a continuous bottom flange, said bottom flange having therein a continuous ridge receiving slot for receiving said sealing ridge, said sealing ridge closely fitting in said ridge receiving slot for providing a sealed junction between said base section and said unitary wall section and for rigidly attaching said base section to said unitary wall section, whereby said base section can be installed or positioned before attachment of said unitary wall section thereto,

said base section including a single piece section composed of molded fiberglass;

said base section being substantially rectangular, said base section having first, second, third and fourth sides, said sealing ridge extending along said first, second and third sides, said unitary wall section having first, second and third wall panels, said ridge receiving groove extending coextensively with said sealing ridge along said first, second and third wall panels of said wall section;

said unitary wall section including first and second flanges extending forward from said first and second wall panels, respectively, for effecting attachment of said unitary wall section to walls of a bounded shower unit installation region within which said shower unit is to be installed, said first and second flanges being flush with an outer

surface of said first and second sides of said base section, whereby said flanges can be used as strips for nailing to the walls of the bounded shower unit installation region or for adhesive attachment thereto;

said unitary wall section including first, second and third horizontal reinforcing members attached to said first, second and third wall panels, respectively;

said wall of said base section having a vertical, upper, inner wall surface, said unitary wall section having a vertical lower, inner wall surface, said vertical, upper, inner wall surface being flush with said vertical, lower, inner wall surface when said base section is joined to said unitary wall section such that said sealing ridge extends entirely into said ridge receiving slot;

said wall of said base section having a vertical, upper, outer wall surface, said unitary wall section having a vertical, lower, outer wall surface, said vertical, upper, outer wall surface being flush with said vertical, lower, outer wall surface when said base section is joined to said unitary wall sections such that said sealing ridge extends entirely into said ridge-receiving slots;

said unitary wall section including first and second vertical posts bounding the entryway of said two-piece molded fiberglass shower unit, said first and second vertical posts being integral with said unitary wall section, there being no vertical joints between said first and second vertical posts and other portions of said unitary wall section,

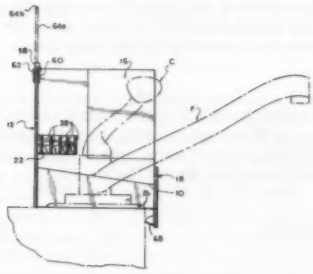
whereby said two-piece molded fiberglass shower unit avoids build-up of residue or mildew of the type that occurs in crevices, joints or seams that retain moisture in multi-piece shower units.

4,423,529

DEVICE FOR RETAINING AND DRAINING KITCHEN ARTICLES

Edward Drach, 275 McLean Ave., Yonkers, N.Y. 10705

Filed May 18, 1981, Ser. No. 264,702
Int. Cl.³ A47L *19/02*
U.S. Cl. 4—656 **10 Claims**



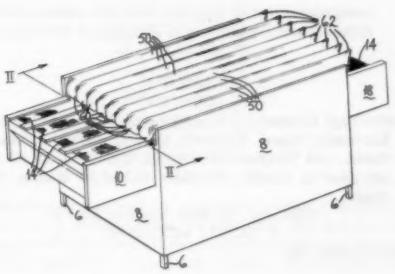
1. A device for retaining and draining kitchen articles, for use in connection with a sink having an interior recessed with respect to a generally planar exterior surface, and a faucet extending upward from said exterior surface, said device comprising first and second spaced, generally upstanding, side surfaces, each having a bottom edge adapted to rest on the exterior surface, a drainage surface mounted between said side surfaces at an incline towards the interior of the sink, and means situated on said drainage surface adapted to retain kitchen articles, said drainage surface comprising a recess adapted to receive said faucet therein and to permit same to at least partially extend above said drainage surface, a portion of said drainage surface being adapted to overhang the interior of the sink, said portion having a drainage port therein, a generally upstanding wall mounted to said portion of said drainage surface and adapted to partially extend below said drainage surface into the interior of the sink, means located on said upstanding wall for spacing said upstanding wall from the wall of the interior of the sink, said port being substantially aligned with the space between the sink wall and said upstanding wall so as to permit drainage from said drainage surface into the sink.

4,423,530

SHOE UPPER HEAT SETTING MACHINE

Anthony M. White, Oadby, England, assignor to USM Corporation, Farmington, Conn.

Filed Jan. 11, 1982, Ser. No. 338,233
Int. Cl.³ A43D *21/00*
U.S. Cl. 12—1 A **9 Claims**



1. A machine for use in heat setting a lasted shoe upper comprising:

a framework forming an elongated substantially enclosed channel;

conveying means operable to convey lasted shoe uppers along the channel;

heating means operable to supply heat to the channel to heat a lasted shoe upper being conveyed along the channel to cause heat setting of the lasted shoe upper; and

a resiliently deformable member secured to the framework at one side of the channel and extending along the channel, the resiliently deformable member being arranged to extend across the channel to engage a cooperating member secured to the framework at the other side of the channel and to thereby close the top of the channel, the arrangement being such that, by deformation of the resiliently deformable member, the leg portion of the lasted upper of a high-legged boot can be inserted between the resiliently deformable member and the cooperating member to be supported by these members as the upper is conveyed along the channel.

4,423,531

FLEXIBLE HAIRBRUSH

Albert Wall, Lodi, Calif., assignor to Pro-Flex, Inc., Stockton, Calif.

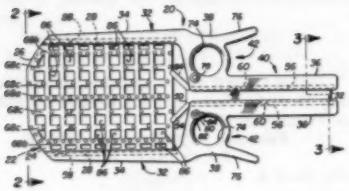
Filed Sep. 27, 1982, Ser. No. 425,063
Int. Cl.³ A46B *1/00, 9/02*
U.S. Cl. 15—187 **19 Claims**

1. A hairbrush comprising:

a generally planar bristle plate having a first face, a pair of first longitudinal edges and a plurality of bristles extending outwardly from said first face;

a pair of members in a facing relationship with respect to each other, each of said members including a first portion, a second portion and a third portion interposed said first portion and said second portion, said first portion of each of said members being engageable with a different one of each of said lateral edges, said second portion of each of said members together defining a handle dimensioned to be received in a palm of a hand, said third portion of each of said members having means for selectively manipulat-

ing said members in a first direction and in a second direction, said first face being concave when said members are



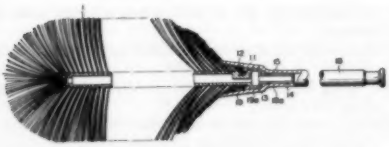
manipulated in said first direction and convex when said members are manipulated in said second direction.

4,423,532

DUSTER

Akira Yagi, Takatsuki; Haruo Nishimura, Osaka; Shinji Bandai, Kawanishi; Masao Kajimaki, Ibaragi; Yoshihiro Nakajima, Osaka, and Noriyuki Matsumoto, Toyonaka, all of Japan, assignors to Duskin Franchise Kabushiki Kaisha, Osaka, Japan

Filed Apr. 23, 1981, Ser. No. 256,835
Int. Cl.³ A47L *13/40*
U.S. Cl. 15—182 **2 Claims**



1. A duster comprising:

(a) a cylindrical step provided with a continuous thread from a forward tip end thereof to a position intermediate the ends of the stem;

(b) a length of ductile synthetic material split and crimped transversely of its width to form bundles of fibers which are joined together along one edge to form a band, said fibers of the band being electrically charged;

(c) a supporting member secured to the cylindrical stem at said tip end thereof, said member having a hollowed interior bounded by a front plate and a sidewall, said front plate including a first notched portion which communicates with the hollowed interior and with a notch extending along one side of the sidewall and a second notched portion which communicates with the first notched portion and a notch extending along the opposite side of said sidewall, both said first notched portion in the front plate and the notch along said one side of the sidewall being dimensioned so as to allow the entry of the edge portion of a tightly rolled end of said band into the hollowed interior of the supporting member and to retain said edge portion within the hollowed interior upon relaxation of the rolled end, both said second notched portion and the notch along said opposite side of the sidewall being dimensioned so as to allow the unrolled edge portion of the band which is adjacent the rolled end to pass therethrough whereby said unrolled edge portion is positioned to be received in the thread of the cylindrical stem;

(d) means provided at said position intermediate the ends of the stem for securing an end of the band edge received in the cylindrical stem thread; and

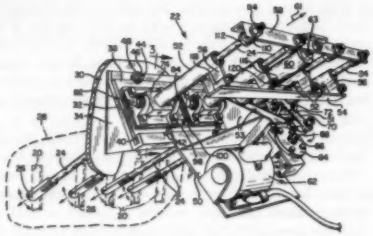
(e) a grip detachably mated with the unthreaded end of said stem.

4,423,533

FURNACE AIR PORT CLEANER

Byron L. Goodspeed, 1111 Holcomb Rd., Kelso, Wash. 98626

Filed Jun. 9, 1982, Ser. No. 386,535
Int. Cl.³ D21C *7/14*
U.S. Cl. 15—246 **14 Claims**



2. Apparatus for cleaning air port openings located in a wall of a firebox, said firebox being provided with a wind box for supplying air under pressure to said openings, said wind box having an outer wall spaced from said wall of said firebox, said apparatus comprising:

a plurality of rods each provided with a cleaning tip adapted for insertion into one of said openings, said cleaning tip being smaller than said opening in at least one lateral direction,

mounting means for removable attachment to said wind box for pivotally and slidably mounting said rods,

means for slidably advancing said rods in a direction primarily longitudinal of said rods for inserting said cleaning tips into said openings, and for subsequently retracting said rods for retracting said cleaning tips from said openings,

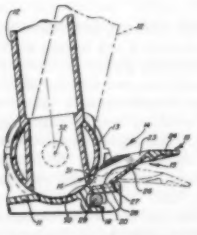
and means for moving said rods in at least one laterial direction while said cleaning tips are inserted in said openings and before retraction thereof to move said cleaning tips along edges of said openings for dislodging residual buildup therefrom, said means for moving said rods in at least one lateral direction comprising means for pivoting said rods with respect to said mounting means.

4,423,534

VACUUM CLEANER HANDLE LOCK

John B. Lyman, Bloomington, and George A. Westergren, Lindwood Township, Anoka County, both of Minn., assignors to Whirlpool Corporation, Benton Harbon, Mich.

Filed Dec. 14, 1981, Ser. No. 330,077
Int. Cl.³ A47L *9/32*
U.S. Cl. 15—410 **18 Claims**



10. In a vacuum cleaner having a nozzle provided with a wheel axle defining a pivot axis, a handle having a connector pivotally mounted to said nozzle to swing about a second axis parallel to said axle pivot axis to and from a storage position, the improvement comprising:

means on the connector defining a latching notch; and

a one-piece handle lock having a mounting portion pivotally mounted to said axle to pivot about said pivot axis, a pair of spaced shoulder portions defining a pair of stop shoulders, a spring portion between said shoulder portions engaging said nozzle for biasing the handle lock to releasably engage said stop shoulders with said connector in said latching notch and thereby retain said handle releasably in said storage position, and a manipulating portion adapted to be engaged by a user for swinging the shoulder portions away from engagement with said connector against the biasing action of said spring portion, thereby to release said handle for movement away from said storage position.

4,423,535

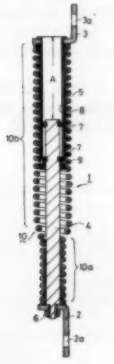
SPRING BALANCER

Juji Ojima, Ebina, and Yuichi Nagase, Nagano, both of Japan, assignors to NHK Spring Co., Ltd., Yokohama, Japan

Filed Mar. 31, 1981, Ser. No. 249,719

Int. Cl.³ E05F *5/08*

U.S. Cl. 16—85 **5 Claims**



1. A spring balancer positionable between a fixed member and a movable member having an end hingedly connected to the fixed member so that the movable member is pivotable about a substantially horizontal axis between open and closed positions, said spring balancer comprising:

a cylinder;

a first bracket connected to one end of said cylinder for connecting said balancer to one of the fixed and movable members, the other end of said cylinder being open;

a rod having one end portion inserted into the open end of the cylinder;

a second bracket connected to the other end portion of said rod for connecting said balancer to the other of the fixed and movable members;

friction means positioned in the cylinder in the vicinity of the open end for engaging the rod and for exerting a friction force on the rod opposing movement thereof during pivoting of the movable member;

a compression coil spring encompassing said cylinder and said rod so that said spring is compressed when said one end portion of said rod moves into said cylinder as said movable member moves between open and closed positions thereof so that the compressed coil spring assists movement of the movable member from its closed to its open position; and

means for retaining the one end portion of the rod in said cylinder.

4,423,536

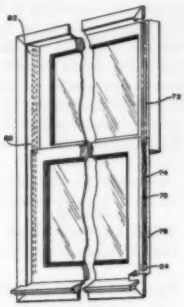
TORQUE CANCELLING, TORQUE TYPE WINDOW SASH BALANCE

Rex D. Cross, 375 Fairfield Ave., Stamford, Conn. 06905

Filed Apr. 20, 1981, Ser. No. 255,750

Int. Cl.³ E05D *13/12*

U.S. Cl. 16—197 **10 Claims**



1. A window sash balance comprising a pair of oppositely wound helical springs, means for attaching said springs to a jam, a pair of oppositely wound actuators, each of said actuators being oppositely wound with respect to an associated one of said springs for winding said springs in opposite directions when the balance is elongated and means for attaching said actuators to a sash, the resultant torques produced by the springs on the actuators being equal and opposite and substantially cancelling each other when the balance is elongated.

4,423,537

HINGE BRACKET-MOUNTING PLATE ASSEMBLY HAVING A SLIDABLE LOCKING BOLT

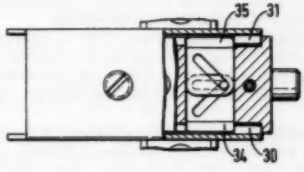
Luciano Salice, Carimate, Italy, assignor to Deutsche Salice GmbH, Freiberg, Fed. Rep. of Germany

Filed Nov. 17, 1981, Ser. No. 322,233

Claims priority, application Fed. Rep. of Germany, Nov. 20, 1980, 3043789

Int. Cl.³ E05D *5/02, 7/12*

U.S. Cl. 16—258 **8 Claims**



1. A hinge bracket-mounting plate assembly wherein the mounting plate is provided on both sides with parallel guiding grooves, sliding lugs angled inwardly from the flanges of the channel-shaped hinge bracket are slidable in the grooves until the lugs abut stops formed by end faces of the grooves, and detent means are provided for releasably locking the hinge bracket to the mounting plate, characterized in that the mounting bracket is formed with a recess, which extends transversely to and connects the guiding grooves, two sliding plates are provided, said sliding plates overlap each other in the middle region of the mounting plate and are guided in said recess, each sliding plate is formed with a substantially diagonal slot, which cross each other and extend between pairs of diagonally opposite corner portions of respective said sliding plates, the mount-

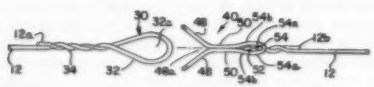
ing plate is formed in its center plane between the guiding grooves with a bore, which is parallel to said grooves, a bolt is slidably mounted in said bore and protrudes from that end thereof which is the forward end in the direction of movement of the hinge bracket as it is pushed onto the mounting plate, said bolt carries a radial pin which extends through a slot, said slot is formed in the bottom of said recess and is parallel to the bore, said radial pin extends into the diagonal slots of the sliding plates, an abutment is provided at the rear end of the bore, a prestressed compression spring is held in the bore between the bolt and the abutment, the pin is adapted to engage the forward end of the slot in the bottom of the recess to hold the sliding plates in a position in which each sliding plate extends into the adjacent guiding groove, and the length of the guiding grooves from the forward edges of the sliding plates to the end faces of said guiding grooves is as large as the length of the sliding lugs.

4,423,538

WIRE CONNECTION

Millard P. Saylor, 1125 W. Greenbrier Ct., Arlington Heights, Ill. 60004

Filed Aug. 2, 1982, Ser. No. 404,273
Int. Cl.³ B65D *63/04*
U.S. Cl. 24—27 **4 Claims**



1. A wire connection for joining two ends of a wire member comprising:

a first end portion of the wire member adjacent one end thereof being formed in a closed loop,

a second end portion of the wire adjacent the other of the ends of the wire member being bent back over an adjacent portion of the wire member to form a projection lying in spaced relationshp thereto,

said projection having a free end spaced from said adjacent portion, the end section of said free end portion having a widened configuration relative to the adjacent portion of said free end portion, said widened configuration forming at least one bearing area,

said second end portion further forming a wire receiving opening for permitting insertion of said closed loop projection and said adjacent wire portion,

said closed loop being arranged to be inserted in a first direction through said opening to a position where said projection passes said closed loop upon withdrawal of said first end portion in a direction opposite to said first direction,

said second portion acting to be distorted in a secure connection with said closed loop upon application of a selected tensile force on the wire member, said at least one bearing area being wedged against another portion of said second end portion after distortion, and

said second end portion deforms under application of the tensile force to cause one section thereof to extend in crossing relationship with yet another portion of said second end portion.

4,423,539

PLASTIC LACES FOR RUNNING SHOES

Jeffrey Ivanhoe, Chandler, Ariz., assignor to Edward I. Greenberg, Chandler, Ariz.

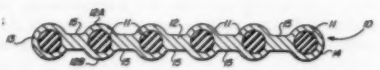
Filed Jan. 4, 1982, Ser. No. 336,940
Int. Cl.³ A43C *9/00*
U.S. Cl. 24—143 A **3 Claims**

1. A shoelace comprising:

a plurality of spacedly positioned and longitudinally arranged elastic strands,

a textile thread woven around the assembled group of said elastic strands to form an elongated web,

the diameter of said strands being larger than the thickness of the web between said strands, thereby forming a ribbed configuration on each side of said web,



rigid tips on the extremities of said textile covered strands to maintain the latter in assembled relationship to define a tying member,

said textile thread being woven around said strands for causing said strands to function substantially independently of the other strands in the assembly, and

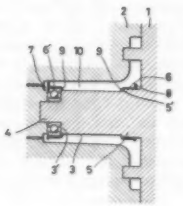
each longitudinal edge of said shoelace comprising a strand covered by said textile thread woven therearound.

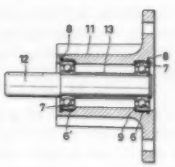
4,423,540

METHOD OF MANUFACTURING A BEARING HOUSING

Tadashi Hishida, 2-3, 2-cho, Kitashimizu-cho, Sakai-shi, Osaka-fu, Japan

Filed Dec. 4, 1981, Ser. No. 327,738
Claims priority, application Japan, Dec. 15, 1980, 55-180982
Int. Cl.³ B23P *3/00, 19/04*
U.S. Cl. 29—460 **4 Claims**





1. A method of manufacturing a bearing housing coaxially accommodating two bearings, comprising the steps of fitting a metal ring on a large-diameter portion of a core of a male mold, fitting another metal ring on the outer ring of a bearing, fitting said bearing and said another ring on a small-diameter portion of said core, axially aligned with and spaced from said first mentioned ring, fitting a female mold on said male mold with a cavity left between said female mold and said male mold, injecting fluid synthetic resin into said cavity, cooling and curing said fluid synthetic resin so as to form a housing, taking said housing out of said molds, pressing a shaft into said bearing, fitting a sleeve on said shaft between said metal rings, and inserting another bearing into a socket formed by said first mentioned metal ring on the large-diameter portion.

3. A method of manufacturing a bearing housing coaxially accommodating two bearings, comprising the steps of fitting a metal ring on a large-diameter portion of a core of a male mold,

fitting another metal ring on the outer ring of a bearing, fitting said bearing and said another ring on a small diameter portion of a core of a female mold, axially aligned with and spaced from said first mentioned ring, fitting said female mold on said male mold with a cavity left between said female mold and said male mold, injecting fluid synthetic resin into said cavity, cooling and curing said fluid synthetic resin so as to form a housing, taking said housing out of said molds, pressing a shaft into said bearing, fitting a sleeve on said shaft between said metal rings, and inserting another bearing into a socket formed by said first mentioned metal ring on the large-diameter portion.

4,423,541

ROLLING MILL ROLL

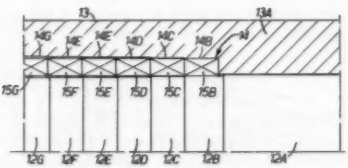
Robert Marshall, Sheffield, England, assignor to Davy-Loewy Limited, Sheffield, England

Filed Nov. 9, 1981, Ser. No. 319,723

Claims priority, application United Kingdom, Nov. 11, 1980, 8036178

Int. Cl.³ B60B *9/00*; B21B *31/08*

U.S. Cl. 29—117 **4 Claims**



1. A rolling mill having adjustable axial compliance comprising:

a. a sleeve having an axial bore;

b. an arbor within said bore and engaging said sleeve over a limited central part;

c. said arbor being spaced from said sleeve to form at each side of said central part an axially extending annular space; and

d. in each said annular space, a plurality of annular wedge devices about said arbor;

e. said wedge devices being contiguously axially arranged in said space from said central part and being expansible to adjust the length of continuous support given by said arbor to said sleeve.

4,423,542

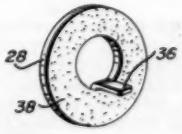
APPARATUS FOR REPAIR OF WORN CLOCK FRAME BEARING BORES

Gregory Stolarczyk, 12910 Orme Rd., Garfield Heights, Ohio 44125

Filed Dec. 18, 1980, Ser. No. 217,790

Int. Cl.³ B23P *19/04*

U.S. Cl. 29—231 **13 Claims**



1. A repair journal for a worn shaft journal bore in a clock frame plate, said repair journal comprising a panel member for support from one side of said plate in parallelly juxtaposition thereto, said panel member including a marginal portion thereof for disposition adjacent the worn side of said bore, said marginal portion of said panel member including a narrow laterally projecting tongue supported therefrom adapted to project into said worn portion of said bore, said tongue being transversely concavo-convex with the convex side thereof adapted to at least substantially seat in said worn side of said bore and the concave side thereof being adapted to oppose the side of said bore remote from said worn side, at least one portion of one side surface of said panel member including an adhesive coating, whereby said panel member may be adhesively secured to one side of said frame plate.

4,423,543

METHOD FOR THE PRODUCTION OF A LINK-BELT

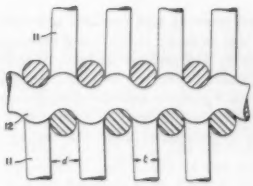
Gerrit W. E. Leuvelink, Haaksbergen, Netherlands, assignor to T.T. Haaksbergen B.V., Haaksbergen, Netherlands

Division of Ser. No. 149,692, May 14, 1980, Pat. No. 4,345,730. This application Jun. 23, 1982, Ser. No. 391,224

Claims priority, application Fed. Rep. of Germany, May 26, 1979, 2921491

Int. Cl.³ B23P *19/04*

U.S. Cl. 29—433 **12 Claims**



1. A method for the manufacture of a link belt defined by a multiplicity of helical coils joined in side-by-side disposition by hinge wires of a thermoplastic monofilament material threaded through the interdigitated turns of adjacent such coils, including the steps of arranging adjacent coils in interdigitated disposition, threading a respective hinge wire through the interdigitated turns of each pair of adjacent coils, subjecting the resultant link structure to a suitable heat-setting temperature and longitudinal tension to cause the hinge wires to deform and assume a crimped configuration in the plane of the structure, and subsequently reducing the temperature of the structure.

5. A method for the manufacture of a link-belt from a plurality of helical coils of a synthetic thermoplastic material arranged in interdigitated disposition and connected together by respective hinge wires engaged with the interdigitated turns of adjacent coils, the thickness of the monofilament defining the coil approximating to the spacing between successive turns of the said coil, comprising the steps of arranging adjacent coils in interdigitated disposition, threading a respective hinge wire through the interdigitated loops of each respective pair of adjacent coils, and subjecting the resultant link structure to a heat setting temperature whilst under longitudinal tension thereby to effect a deformation of the material of the coils in those regions thereof whereat the hinge wires are seated to increase the cross sectional dimension of the said coils in such regions to a level in excess of the spacing between adjacent turns of the said coils as measured in the axial direction of the hinge wires.

4,423,544

METHOD OF MAKING COMPOSITE GASKET

Gerald E. Kashmerick, Lindenhurst, and Gerald A. Rosenquist, Montgomery, both of Ill., assignors to Felt Products Mfg. Co., Skokie, Ill.

Filed Nov. 6, 1981, Ser. No. 318,947

Int. Cl.³ B23P *15/06*

U.S. Cl. 29—527.2 **13 Claims**

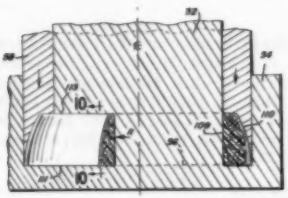
1. A method of forming a high temperature resistant sealing ring comprising the steps of

forming a loose coil of a first height from a strip of heat-resistant material,

placing said coil in a first die and axially compressing the coil under a first lower pressure into an annular preform of a second height having a plurality of crevices in a surface thereof,

placing said preform in a second die,

placing temperature resistant sealing material in said second die juxtaposed with said preform,



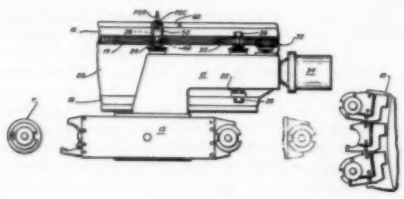
axially compressing said preform and said sealing material under high pressure to force said sealing material into said crevices in said preform surface, to reduce the height of said cylindrical preform to a third height, to substantially deform said preform and said sealing material, and to form a smooth sealing material surface at said preform surface, thereby to provide an improved sealing ring.

4,423,545

MACHINING CENTER

Richard R. Carroll, Chagrin Falls, and Alan M. Papp, Eastlake, both of Ohio, assignors to Litton Industrial Products, Inc., Cleveland, Ohio

Filed Aug. 5, 1981, Ser. No. 290,411
Int. Cl.³ B23Q *3/157*
U.S. Cl. 29—568 **3 Claims**



1. A machining center comprising

a tool spindle,

a tool magazine,

a tool shuttle assembly for transferring tools between said tool spindle and said tool magazine including

rail means,

a tool change mechanism including a carriage,

means for mounting said carriage on said rail means for displacement therealong,

a dynamically brakeable motor for driving said tool change mechanism along said rail means in a selected direction,

means for stopping said tool change mechanism driven in the selected direction, including

first proximity switch means secured to said carriage at a selected spacing from said rail means for maintaining the condition of said proximity switch means as said carriage is displaced along said rail means,

opening means in said rail means at a selected location for changing the condition of said first proximity switch means as said carriage means is displaced in the selected direction along said rail means,

second proximity switch means secured to said rail means,

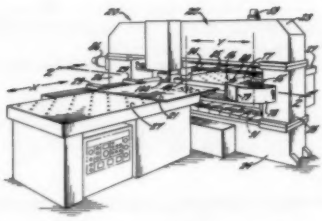
said tool change mechanism including a projecting element for changing the condition of said second proximity switch means from a first condition to a second condition as said tool change mechanism is displaced therealong, said projecting element being selectively located and said opening being selectively configured so that said first and second proximity switches will simultaneously have said second condition when said tool change mechanism is at said predetermined position.

4,423,546

PUNCH PRESS WITH AUTOMATIC TOOL CHANGER

William B. Scott, Rochelle; Daniel C. Dickinson, Pecatonica, and Joel C. E. Arnesson, Rockford, all of Ill., assignors to W. A. Whitney Corp., Rockford, Ill.

Filed Sep. 4, 1981, Ser. No. 299,391
Int. Cl.³ B23Q *3/157*
U.S. Cl. 29—568 **5 Claims**



1. A punch press comprising a support, a vertically reciprocable ram, a punch holder on the lower end of said ram and having means for releasably retaining a punch, a die holder spaced below and alined vertically with said punch holder and having means for releasably retaining a die, a tool magazine on said support and releasably holding a plurality of sets of vertically alined punches and dies, means for moving said magazine on said support to advance any selected one of said sets to a tool changing station, means mounting said punch and die holders on said support for bodily movement toward said magazine and into said tool changing station and for bodily movement away from said magazine and out of said tool changing station, means for moving said punch and die holders bodily toward and away from said magazine and said tool changing station while maintaining the punch holder and the die holder in vertical alinement, and means for actuating said retaining means to cause said punch and die holders to pick up a punch and die from said magazine when said punch and die holders are in said tool changing station and to release said punch and die to said magazine when said punch and die holders are next in said tool changing station.

4,423,547

METHOD FOR FORMING DENSE MULTILEVEL INTERCONNECTION METALLURGY FOR SEMICONDUCTOR DEVICES

Paul A. Farrar, South Burlington; Robert M. Geffken, Burlington, both of Vt., and Charles T. Kroll, Raleigh, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 1, 1981, Ser. No. 269,230
Int. Cl.³ H01L *21/04*
U.S. Cl. 29—571 **8 Claims**

1. The method for providing multilevel interconnections for an integrated circuit comprising the steps of:

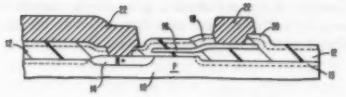
providing a first patterned layer of interconnect metallurgy on

the surface of a semiconductor substrate passivated with an oxide of silicon;

blanket depositing a layer of silicon nitride over said substrate;

photolithographically defining overlap via holes only through said silicon nitride layer to expose portions of said first patterned layer where interlevel contacts are desired;

blanket depositing a layer of organic dielectric material over said substrates said organic dielectric layer being thicker than said silicon nitride layer;



photolithographically defining oversized via holes, larger than said overlap via holes, in said organic dielectric layer to expose said overlap via holes and to re-expose said portions of said first patterned layer; and

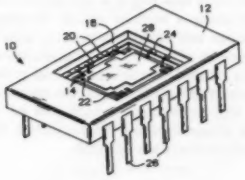
depositing a second patterned layer of interconnection metallurgy over said substrate to form continuous interconnection segments contacting said first patterned layer through said overlap and oversized via holes and passing over at least portions of said organic dielectric layer and said silicon nitride layer.

4,423,548

METHOD FOR PROTECTING A SEMICONDUCTOR DEVICE FROM RADIATION INDIRECT FAILURES

Terry S. Hulseweh, Mesa, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 6, 1981, Ser. No. 280,190
Int. Cl.³ H01L *21/56*
U.S. Cl. 29—591 **6 Claims**



1. A method for forming a radiation shield to protect a semiconductor device from radiation induced failures, said semiconductor device formed at a surface of a semiconductor wafer and including on said surface device metallization and bonding pads, said method comprising the steps of: forming an insulating layer overlying said surface; forming a metal layer on said insulating layer by sequential depositions of chromium and a first copper layer followed by the electrolytic plating of a second copper layer, said insulating layer providing electrical isolation between said metal layer and said device metallization; and patterning said metal layer to allow bonding to said bonding pads.

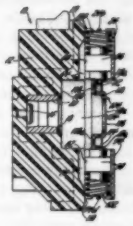
4,423,549

METHOD OF ASSEMBLING DYNAMOELECTRIC MACHINE BRUSHES

Dallas E. King, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 74,387, Sep. 10, 1979, Pat. No. 4,293,785. This application Apr. 13, 1981, Ser. No. 253,793
Int. Cl.³ H02K *15/14;* H01R *43/12*
U.S. Cl. 29—597 **2 Claims**

1. A method of assembling a rotor of a dynamoelectric machine having a current conducting means secured to rotate with the rotor shaft to an end cap assembly that has bearing means for receiving the rotor shaft and has spring biased brushes engaging the current conducting means once the rotor shaft is assembled to the end cap, the steps comprising, placing a radially outer wall means of a brush retainer having a central opening into engagement with internal wall means of said end cap whereby the retainer is supported by the end cap, assembling a plurality of brushes and associated springs that are separate from said brush retainer to said end cap with a radially inner end of each brush engaging said outer wall means of said



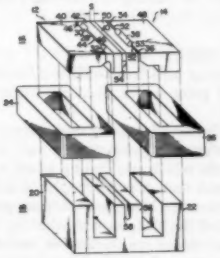
brush retainer and with the springs urging each brush against the retainer, the retainer serving to maintain the brushes in a retracted position, inserting the shaft of said rotor through the central opening in said retainer and into the bearing means, and during the insertion of said shaft engaging a portion of said rotor with said retainer to axially slide said retainer relative to said end cap along internal wall means of said end cap to a position out of engagement with said brushes whereby the brushes are spring biased into engagement with said current conducting means of said rotor.

4,423,550

COMPOSITE MAGNETIC HEAD STRUCTURE AND PROCESS FOR MANUFACTURING THE SAME

Yoshiharu Fujioka, Yamato, and Shushi Takei, Yokohama, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Apr. 21, 1981, Ser. No. 256,050
Claims priority, application Japan, Apr. 30, 1980, 55/57525
Int. Cl.³ G11B *5/42*
U.S. Cl. 29—603 **5 Claims**



1. A process for manufacturing a composite magnetic head structure comprising the steps of:

forming in a first magnetic plate and a second magnetic plate a plurality of parallel notches at a predetermined pitch and of a predetermined width with the space between adjacent notches defining a track width;

forming a groove defining a gap depth in said first magnetic plate in a direction perpendicular to said plurality of parallel notches;

adhering said first and second magnetic plates in such a

manner that a non-magnetic material layer is interposed therebetween and said plurality of parallel notches in the respective magnetic plates oppose each other to form a plurality of holes;

opposing and adhering two assemblies formed by said adhering step in such a manner that non-magnetic spacing means is interposed therebetween and said plurality of parallel holes of said assemblies are mutually shifted by half the pitch;

cutting the obtained adhered assemblies into a plurality of assembly blocks along planes extending perpendicular to said spacing means and perpendicular to the longitudinal direction of said plurality of holes;

cutting the obtained assembly block into a plurality of first assembly chips along lines passing the middle points between said holes of one assembly and perpendicular to the longitudinal direction of said spacing means; and

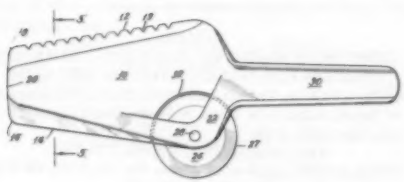
adhering said first assembly chips with second assembly chips processed to have grooves to form a first side leg, a second side leg and a common leg having a notch to correspond with said spacing means in such a manner that said notch of said common leg corresponds with said spacing means, thereby defining first and second magnetic flux paths, and forming respective windings on said first and second side legs.

4,423,551

PIZZA CUTTING AND SERVING UTENSIL

John F. Chmela, Mt. Prospect; Carl R. Fletcher, Arlington Heights, and Norton Sarnoff, Northbrook, all of Ill., assignors to Ensar Corporation, Wheeling, Ill.

Filed May 7, 1982, Ser. No. 375,809
Int. Cl.³ A47J 43/28
U.S. Cl. 30—142 **12 Claims**



1. A utensil for cutting and serving pizza or the like, comprising:

a handle;

a cutting wheel;

a blade having sufficient width and length to hold thereon a piece of pizza or the like, and having formed as a part thereof

(i) a knife-like edge along one elongate edge thereof, and

(ii) a bifurcated yoke with a pair of planar furcations between which said cutting wheel is journaled for rotation and thus disposed coplanar with said blade, each said furcation being smoothly merged into and forming a part of the blade surface whereby the serving surfaces of said utensil are continuous and effective as a server irrespective of which planar side thereof said pizza or the like is served.

4,423,552

UNIVERSAL KNIFE BLOCK

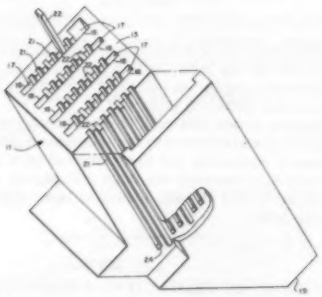
John Bourgein, and Betsy Rothman, both of 4549 Horton St., Oakland, Calif. 94608

Filed May 17, 1982, Ser. No. 378,760
Int. Cl.³ A47F 5/16
U.S. Cl. 30—296 A **10 Claims**

1. A knife holder comprising a generally solid block member defined by exterior planes including a face plane and having a longitudinal axis perpendicular to said face plane wherein said block has formed therein

a plurality of elongated slots for storing and protecting knife blades wherein each said slot is defined by a separate pair of substantially parallel closely spaced side walls extending a substantial distance into said block member parallel to said longitudinal axis wherein each of said slot defining walls has an edge in said face plane whereby a knife blade can be inserted into said block member through one of said slots in said face plane thereof

A plurality of spaced divider grooves formed in at least one side wall of each of said slots and wherein each said divider groove has an edge in said face plane



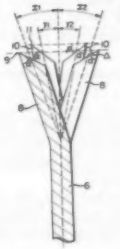
A plurality of slot dividers, each formed to be slideably insertable into and removable from a slot at a selected divider groove, each of said dividers having a width that spans the distance between the walls defining a slot and a length which permits each said divider to extend from said face plane into said block a substantial distance, said divider including a portion which registers in a divider groove when said divider is inserted into said block at a divider groove whereby each of said slots is divisible into a plurality of knife blade storing and protecting pockets wherein the number of said pockets formed from each slot and the size knife blade which can be inserted into a pocket is determined by the particular divider grooves into which dividers are inserted.

4,423,553

BLADE FOR A SAW AND A METHOD FOR MANUFACTURING THE SAME

Uichi Miyawaki, 1015-1 Kishi-cho, Ono-shi, Hyogo Pref., Japan

Filed Dec. 21, 1981, Ser. No. 332,455
Claims priority, application Japan, May 1, 1981, 56-67448
Int. Cl.³ B27B 21/00; B23D 63/00
U.S. Cl. 30—355 **6 Claims**



1. A blade for a cross-cutting saw provided along at least one

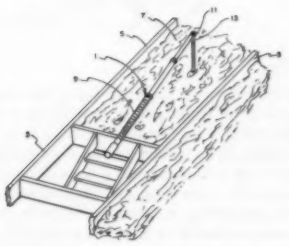
edge thereof with a plurality of cutting teeth splayed in alternate directions, each cutting tooth edge being tapered to a sharp cutting edge on its outer edge, forming an acute taper angle a which is substantially the same for all cutting teeth, each cutting tooth being inclined at an angle to the central plane of the blade and each adjacent tooth being inclined at an angle to the same plane but in the opposite direction and each cutting tooth being equally spaced along the length of the blade from each adjacent tooth, wherein main cutting teeth comprising a majority of said cutting teeth along said edge of said blade are splayed with a desired splaying angle x to said central plane of the blade such that the width between the outer tips of the splayed main cutting teeth defines a width of a kerf cut in a workpiece when said saw is used to cut the workpiece and such that said main cutting teeth form an angle Δ with the horizontal, and a predetermined number of intermediate auxiliary cutting teeth at a plurality of predetermined points along said edge of said blade comprising the balance of said cutting teeth other than said main cutting teeth, are splayed with a desired splaying angle y which is less than the splaying angle of said main cutting teeth, such that said auxiliary teeth cut in the area laterally between said main cutting teeth and such that said auxiliary cutting teeth form an angle B with the horizontal, the angles bearing the following relationships: $x+a+\Delta=90°$ and $y+a+B=90°$, said auxiliary cutting teeth extending further along the central plane of the blade than said main cutting teeth, and the combined cutting action of said main and said auxiliary cutting teeth creates a substantially flat-bottomed kerf in the workpiece when said saw is used to cut said workpiece.

4,423,554

INSULATION DEPTH GAUGE

James E. Cantrell, 207 Over Creek Rd., Greenville, S.C. 29607

Filed Apr. 16, 1981, Ser. No. 254,742
Int. Cl.³ G01B *3/28*
U.S. Cl. 33—169 B **4 Claims**



1. An insulation depth gauge comprising:

a handle having indicia thereon, said handle comprising a plurality of telescoping sections for the collapse or extension thereof;

linear measuring means attached to said handle at an angle thereto to permit depth measurement in a direction other than the direction defined by said handle; and

indicia on said measuring means to indicate depth of penetration into insulation; and

wherein indicia on said handle corresponds to indicia on said linear measuring means; and

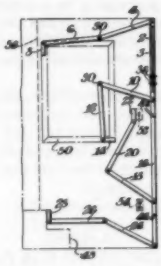
wherein said indicia on said linear measuring means comprise color coded sections indicating units of linear measurement, and said indicia on said handle comprises-color coded sections corresponding to said color coded sections-of said linear measuring means and having numeral indicia thereon to identify the number of units of linear measurement submerged to said depth of penetration.

4,423,555

DEVICE FOR MEASURING CUTS IN WALL PANELING AND THE LIKE

Doyle F. Wootten, R.D. #1, Box 3, Magnolia, Del. 19962

Filed Sep. 28, 1981, Ser. No. 306,007
Int. Cl.³ G01B *3/14*
U.S. Cl. 33—174 G **9 Claims**



1. A device for accurately measuring the locations of cuts in wood or similar paneling needed to accommodate windows, electrical switches and outlets, stairs and the like comprising:

(a) an upper body member,

(b) a lower body member affixed to said upper body member,

(c) an upper arm assembly and a lower arm assembly attachedto each of said upper and lower body members, each arm assembly comprising

(i) an interior arm member pivotally attached at one end to said body member,

(ii) a middle arm member pivotally attached at one end to the other end of said interior arm, and

(iii) an exterior arm member pivotally attached to one end to the distal end of said middle arm member

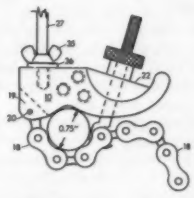
(d) all pivotal attachments being by rivets having sufficient force exerted at each joint to prevent substantial movement of said joints in transportation of the device, yet each joint being readily adjustable and moveable to allow precise positioning of the components at desired locations.

4,423,556

ALIGNMENT DEVICE

Gilbert J. DiVelez, 117 S. 10th St., Colorado Springs, Colo. 80904

Filed Jun. 11, 1981, Ser. No. 272,501
Int. Cl.³ G01B *3/30, 5/14*
U.S. Cl. 33—180 R **6 Claims**



1. A tool comprising

A. A base having, on one side, an arcuate finger portion with a concave upper surface and an elongated slot cut vertically through a substantial portion of the length of the finger and, on the other side, a second portion with a concave lower surface and an upper and at least one lateral surface adapted for fixed connection to position rod attachment means;

B. Chain means rotatably connected adjacent the concave lower surface on the lower corner of the second portion and adaptable for insertion into a hooking means moveably positioned through the slot in the arcuate finger portion of the base;

C. Hooking means having a hook portion adapted to receive and hold the chain means within the hook, said hook portion to pass through the elongated slot and an anchor means and for positioning by a retractor means;

D. Anchor means closely fitted and adapted to rotate within the concave upper surface of the arcuate finger portion and to be positioned and held by the hooking means and retractor means;

E. Retractor means adapted for retracting the hooking means; and

F. Attachment means for

(1) fixed connection to at least one of the upper and at least one lateral surface of the base and adapted for

(2) attachment to a gauge.

4,423,557

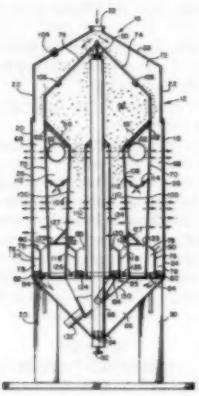
GRAVITY FLOW DRYER FOR PARTICULATE MATERIAL HAVING CHANNELIZED DISCHARGE

Christianus M. T. Westelaken, St. Mary's, Ontario, Canada

Filed Jun. 19, 1981, Ser. No. 275,312

Int. Cl.³ F26B *17/12*

U.S. Cl. 34—56 8 Claims



1. A gravity flow dryer for particulate material comprising:

a generally vertical drying column having first and second opposed spaced walls, a corresponding portion of each of said walls including perforations therein, the column being adapted to receive particulate material at the top and direct the material through the dryer to the bottom and being unrestricted in the column to the flow of particulate material so as to permit particulate material to flow from the second wall toward the first wall as the particulate material passes down the column;

means for introducing moist particulate material into a top portion of the column;

means for passing drying air into the column through the perforate portion of the first wall and out of the column through the perforate portion of the second wall for drying the material in a treating zone in the column;

output means located below the perforate portion of the column for removing dried particulate material from the bottom of the column below the treating zone in and including a first discharge means at the bottom of the column and a second discharge means at the bottom of the column, the first discharge means being adjacent the first wall and the first discharge means being adapted to discharge particulate material at a rate faster than the second discharge means to provide a differential grain flow in the unrestricted column in the treating zone for more particulate material passing through the column to be discharged through the first discharge means, whereby the faster dried grain adjacent the first wall in the column passes through the column faster for a channelized discharge through the discharge means.

4,423,558

DEVICE FOR HEAT EXCHANGE BETWEEN SOLID PARTICLES AND A GAS CURRENT

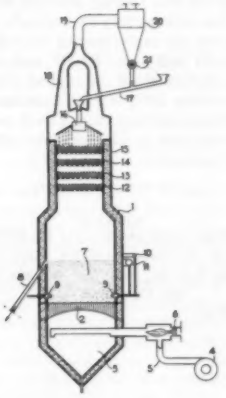
Georges Meunier, Fontaines Par Chagny, France, assignor to St. Gobain Vitrage, Courbevoie, France

Continuation of Ser. No. 227,390, Jan. 22, 1981, which is a continuation of Ser. No. 75,125, Sep. 13, 1979, abandoned, and Ser. No. 76,464, Sep. 17, 1979, abandoned. This application May 2, 1983, Ser. No. 489,601

Claims priority, application France, Sep. 21, 1978, 78 27054; Sep. 21, 1978, 78 27057

Int. Cl.³ F26B *17/10*

U.S. Cl. 34—57 A 16 Claims



1. A heat exchanger for exchanging heat between solid particles and a gas where said exchanger has a vertically extending column in which the solid particles flow downwardly under gravitational forces and gas flows upwardly and at least one stage in said column having a stack of packing elements and a support for supporting said packing elements; the improvement comprising in that said support has openings therein having meshes the porosity of which is at least 75% of the porosity of the stack of packing elements through which said gas may flow at a velocity whereby the solid particles will form a loose fluidized bed in contact with the support.

4,423,559

GOLD DREDGE SUCTION NOZZLE

John L. Malin, P.O. Box 186, Shady Cove, Oreg. 97539

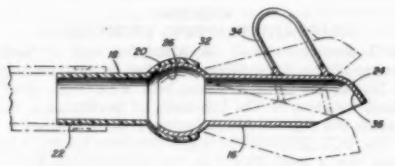
Filed Jul. 15, 1982, Ser. No. 398,583

Int. Cl.³ E02F *3/88*

U.S. Cl. 37—58 1 Claim

1. A suction nozzle for the inlet end of a hand supportable suction dredge hose, said nozzle including horizontally elongated inlet and outlet end sections each including inlet and outlet ends, the inlet end of said outlet section and the outlet end of said inlet section being fluid flow communicated with each other and including coacting means universally coupling the fluid flow communicated ends together for limited universal relative angular displacement about infinitive axes extending substantially normal to the center axes of said ends and for

rotational angular displacement of said inlet end section about its center axis relative to said outlet end section while maintaining a good fluid seal between said flow communicated ends, and handgrip means carried by said inlet section and projection laterally outwardly therefrom, said outlet end section including a tubular nipple defining outlet end and a partial spherical outwardly flaring inlet end, the outlet end of said inlet end section defining a partial spherical bulbous end universally received in the inlet end of said outlet end section, a band section including a truncated spherical interior joined to the large diameter end of said inlet end of said outlet section cap-



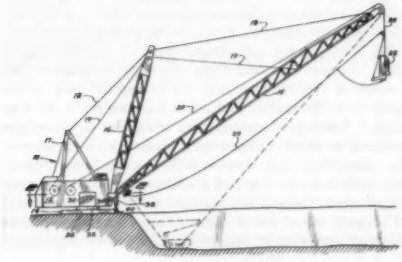
tively retaining said bulbous end in said partial spherical inlet end, said handgrip means being carried by said inlet end of said inlet section and comprising an upstanding inverted U-shaped handle rigid with said inlet end section and having its closed upper end outermost, said handle being rearwardly and upwardly inclined toward its closed upper end, said inlet end of said inlet end section defining a downwardly opening inlet opening inclined relative to the longitudinal axis of said inlet end section and of an inside cross-sectional area at leat slightly less than the cross-sectional area of the remainder of the interior of said inlet end section, said U-shaped handle and said inlet end section being disposed in substantially the same plane.

4,423,560

AUXILIARY SUPPORT FOR HEAVY EQUIPMENT

Theodore Rivinius, 810 N. Second St., and Emanuel Helm, both of Bismarck, N. Dak. 58501

Filed Oct. 26, 1981, Ser. No. 314,532
Int. Cl.³ B62D *57/02*
U.S. Cl. 37—116 **6 Claims**



1. In a walking mechanism for heavy equipment, the combination comprising:
a frame;
a base pad attached to the frame for supporting the equipment on the ground;
means for lifting the base pad and frame off of the ground and to provide movement of the equipment horizontally with respect to the ground; the improvement comprising:
a cross pad positioned exterior to the base pad and adjacent an end of the frame opposite from the direction of movement;
means pivotally connected to both the frame and the cross pad for exerting force tending to separate the frame and the cross pad; and
the cross pad being selectively engageable with the ground for supporting a portion of the weight of the frame and base pad at the same time as weight is supported by the means for lifting.

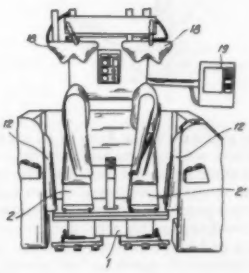
4. The mechanism of claim 3 wherein the walking mechanism is an excavating machine of the drag line type having a boom at one end of the frame, the cross pad being positioned proximate that end of the frame having the boom.

4,423,561

COAT PRESS

Giovanni Cartabbia, Via Fusline, 36, 25036, Palazzolo Sull'oglio, Italy

Filed Jul. 23, 1981, Ser. No. 286,206
Claims priority, application Italy, Aug. 4, 1980, 23913 A/80
Int. Cl.³ D06F *71/28*
U.S. Cl. 38—23 **7 Claims**



1. An ironing machine for ironing coats, sections of coats and like articles which machine comprises a base means (1); a pair of half-manikins each supported by said base means and having respective configurations that are generally of mirror-image symmetry, each half-manikin including a half-bust form assembly (3), a shoulder form assembly (4) and a sleeve form assembly (5) releasably coupled together, said sleeve form assembly being adjustably movable in relation to said shoulder form assembly, said half-bust form assembly (3) including a movable board operable to iron the top sleeve portion of a coat put on the half-manikin, said sleeve form assembly including a flexible rod means operable to recover the size and shape of the sleeve of a coat put on the half-manikin; and a pair of plates supported for movement relative to said base means and for movement relative to said sleeve form assembly for cooperation therewith in ironing the coat sleeves.

4,423,562

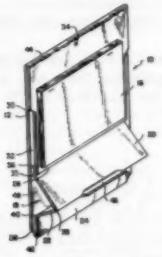
COMBINATION WALL CALENDAR AND SUPPORT

Gordon E. Nichols, deceased, late of Middleboro, Mass. by Madeleine Nichols, administrator, assignor to Winthrop-Atkins Co., Inc., Middleboro, Mass.

Filed Aug. 9, 1982, Ser. No. 406,205
Int. Cl.³ B42D *5/04*; B43L *1/00*
U.S. Cl. 40—107 **4 Claims**

1. A combination wall calendar and support comprising a back panel of predetermined length having back and front sides, a face panel of shorter length than the back panel disposed in face-to-face contact with the front side of the back panel with its ends parallel to the ends of the back panel and with its lower end spaced from the lower end of the back panel, a forwardly and downwardly-inclined supported panel at the lower end of the face panel, a pair of hingedly-connected supporting panels supporting the supported panel in said forwardly and downwardly-inclined position, one of said supporting panels being hingedly connected to the lower end of the supported panel and the other to the lower end of the back panel, said supported and supporting panels collectively exceeding the length of the distance between the lower end of the

face panel and the lower end of the back panel, one of said supporting panels being disposed to extend upwardly from the lower end of the back panel in contact with the front face of the back panel and the other to extend outwardly and upwardly from the upper end of the one panel at an angle to the front face of the back panel to the lower edge of the supporting panel such that the supported panel and the outwardly and upwardly-extending disposed supporting panel define, in conjunction with the back panel, a continuous passage transversely of the structure in the form of an open-ended pocket suitable to receive writing materials and a lip at the junction of the lower end of the supported panel with the upper end of the outwardly and upwardly-positioned supporting panel cut out of the supported panel, integral with the upwardly and outwardly-positioned supporting panel and projecting forwardly from the lower end of the supported panel in the plane of the upwardly and outwardly-positioned supporting panel defining a shelf suitable to support a writing implement at the lower end of the supporting panel.



4,423,563

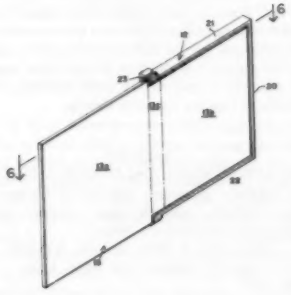
FOLDING PICTURE FRAME

George Ondricek, 150 NW. 126th St., North Miami, Fla. 33168

Filed Sep. 30, 1982, Ser. No. 431,339

Int. Cl.³ G09F *19/00*

U.S. Cl. 40—533 **3 Claims**



1. A folding picture frame comprising, in combination, a rectangular housing, a rectangular front picture panel, means hinging said front picture panel at one side along one side of said housing for swinging said front picture panel between face-to-face overlying and sidewardly outwardly-extending positions with respect to the front surface of said rectangular housing, said front picture panel, when swung to said sidewardly outwardly-extending position, revealing a first interior picture of approximately twice the size of said front panel picture, said first interior picture comprising a first section fixed against the inner surface of said front picture panel, a first carrier member normally within said housing, said first interior picture further comprising a second section supported in front of said first carrier, and said first interior picture further comprising a flexible central first interior picture section interjoining said first and second picture sections, said front picture panel hinging means, upon said front picture panel being swung to said outwardly-extending position, being operative to position the inner surface of said front picture panel to lie in substantially the same plane as that of the front surface of said housing, said first carrier member being so disposed within said housing as to display said first interior picture sections in a substantially common plane.

4,423,564

TRAPS AND TRAPPING TECHNIQUES

Alan R. Davies; Ewen D. M. MacAuley, both of Kimpton; George Harris, Looe; Raymond Baker, Southampton; Philip E. Howse, and David A. Evans, both of Eastleigh, all of England, assignors to The University of Southampton, Southampton and OECOS Ltd., Kimpton, both of, England

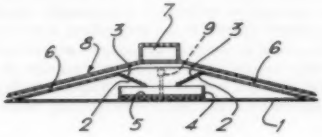
PCT No. PCT/GB80/00034, § 371 Date Nov. 3, 1980, § 102(e) Date Nov. 3, 1980, PCT Pub. No. WO80/01748, PCT Pub. Date Sep. 4, 1980

PCT Filed Feb. 28, 1980, Ser. No. 201,393

Claims priority, application United Kingdom, Mar. 2, 1979, 7907470

Int. Cl.³ A01M *1/10*

U.S. Cl. 43—121 **6 Claims**



1. A pest trap comprising a surface which can be changed alternately from a pest-supporting condition to a pest-dislodging condition at predetermined time intervals, a trapping zone associated with the surface for receiving pests dislodged therefrom and pest-retaining means associated with the trapping zone, wherein the changing of said surface between said pest-supporting and pest-dislodging conditions, at said predetermined time intervals, is sufficient only to dislodge pests from the surface into the trapping zone, the surface being operable electrically between the pest-supporting and pest-dislodging conditions, the surface comprising electrical conductors between which an electric potential can be applied only to dislodge pests from the surface and not to kill said pests, the trap comprising a housing of substantially triangular cross section with opposed inclined surfaces each leading to a respective, inwardly extending and downwardly inclined cockroach-receiving surface in the form of electrically-insulating panels upon whose upper surfaces are disposed said electrical conductors and beneath whose lower edges is located a trapping zone in the form of a removable tray with a sticky insert positioned therein.

4,423,565

BUBBLE-BLOWING DEVICE WITH VARYING AIR FLOW PRESSURE

Philip D. Bart, Coral Springs, Fla., assignor to M & B Toys, S.A., Colon, Panama

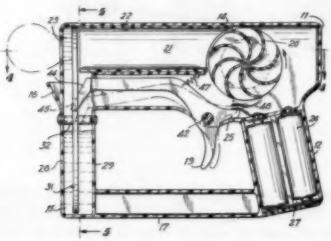
Filed Dec. 30, 1980, Ser. No. 219,143

Int. Cl.³ A63H *33/28*

U.S. Cl. 46—8 **9 Claims**

1. In a device for blowing bubbles, such device being operable with a soapy-like liquid and a source of electric current, the device including a housing, a reservoir in the housing for containing a quantity of said liquid, an electric blower carried by said housing and powered by said source of electric current, the blower further including a duct with an outlet opening for

directing a stream of air and electrical switch means for turning said blower on and off, a bubble-forming element movably mounted on said housing and having a first part which defines therein at least one aperture, and drive means for moving said bubble forming element such that its first part moves downward into said reservoir and thence upward out of said reservoir for dipping said aperture into and out of any of said liquid in said reservoir, thereby forming a liquid membrane across said aperture, and thence for moving said first part and membrane into a bubble position adjacent said outlet opening and in the path of said stream of air, the improvement comprising control means actuating said switch means and blower to said on condition periodically when said first part and membrane are moved to said bubble position and actuating said switch means and blower to said off condition when said first part is



moved away from said bubble position, said blower producing a stream of air having a particular air flow pressure during said on condition, and wherein said control means turns said blower on in a timed relationship with the movement of said bubble-forming element such that said stream of air will have an air flow pressure less than said continuous air flow pressure each time one of said apertures is initially moved to said bubble position, said housing further defining an outer orifice adjacent, downstream of and aligned with an aperture of said bubble-forming element when in its bubble position, said outer orifice having a diameter no less than the diameter of said aperture and being situated sufficiently close to said aperture at said bubble position to permit some of the bubbles at some time during the formation thereof to form simultaneously from said outer orifice and said aperture.

4,423,566

DRIVE ARRANGEMENT FOR A WINDOW LIFTING MECHANISM

Hans-Peter Hess, Coburg, and Günter Mühling, Grub a. Forst, both of Fed. Rep. of Germany, assignors to Metallwerk Max Brose GmbH & Co., Coburg, Fed. Rep. of Germany

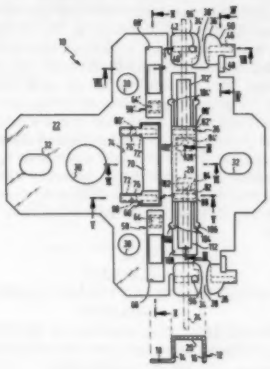
Filed Jun. 17, 1981, Ser. No. 274,664

Claims priority, application Fed. Rep. of Germany, Jun. 24, 1980, 3023641

Int. Cl.³ E05F *11/48*

U.S. Cl. 49—352 **20 Claims**

1. A drive mechanism for a window, particularly the window of a motor vehicle, comprising a driven base member having means for enabling a window to be affixed thereto, a longitudinal guide rail supportably engaging said base member to guide movement thereof, a driving member connected with said base member to drive said base member along said guide rail, a guide flange provided on said guide rail extending generally in the direction of movement of said base member, and slide elements formed on said base member arranged to rest against said guide flange, with at least one of said slide elements



being formed with a resilient structure to hold said base member in resilient engagement with said guide flange.

4,423,567

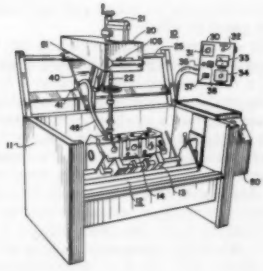
POWER STROKING HONING MACHINE AND CONTROL APPARATUS

Alfred J. Raven, III, 7 Hillside Ter., Morganville, N.J. 07751

Filed Sep. 16, 1981, Ser. No. 302,489

Int. Cl.³ B24B *5/08*

U.S. Cl. 51—31 R **8 Claims**



1. In a honing machine of the type having a base assembly, a honing beam pivotally mounted for vertical movement on said base assembly and adapted to move up and down in said vertical plane as controlled by a cylinder having a moveable piston and coupled between the beam and said base for vertically moving the beam up or down in said vertical plane, and a rotatable honing tool assembly coupled to said beam, the combination therewith of apparatus for controlling the movement of said beam between a selectable upper limit manifesting a selectable vertical stroke, comprising:

a plurality of non-contacting sensors positioned along said cylinder and responsive to the position of said piston, to actuate when said piston is at a position corresponding to any one of a plurality of positions determined by the location of said sensor along said cylinder, and

control means coupled to said sensors and operative to select any one of said sensors to cause said beam to move downwardly when said selected sensor is actuated,

down sensing means responsive to said beam being in a maximum down position to provide a control signal indicative of said position, selectable operated power dwell

means responsive when selected to said control signal indicative of said maximum down position,

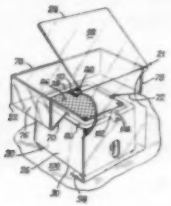
a separate sensor positioned proximate said cylinder and operative to be acutated when said power dwell means is selected to cause said sensor to be actuated when said beam moves upwardly a distance less than any distance selected by said control means and independent of said selection by said control means and selectable timing means for providing a selected timing interval when said power dwell means is selected to cause said beam to move up and down within a predetermined distance defined by said separate sensor and said down sensing means during said selected timing interval, whereby after said selected timing interval said beam continues to move up and down as selected by said control means accorded to said selected sensor.

4,423,568

SPLASH SHIELD AND CUTTINGS GUARD FOR GLASS ROUTER

Larry L. Gould, 516 S. Calumet, Aurora, Ill. 60506

Filed Oct. 5, 1981, Ser. No. 308,395
Int. Cl.³ B24B *55/00*
U.S. Cl. 51—72 R **5 Claims**



1. In combination, a glass router and improved splash shield and cuttings guard in which:

said router comprises a housing having top, bottom, front, back and side portions; the top portion having a rim enclosing a reservoir for liquid coolant, a horizontal work table above the reservoir and an abrasive router wheel positioned to grind a workpiece on the table; the bottom portion having foot means at least along the front edge;

said splash shield and cuttings guard comprising a readily removable side shield and a readily removable eye shield;

said side shield comprising a generally C-shaped horizontal base plate having outer and inner margins, an upstanding wall extending along the outer margin at the back and sides of the housing to intercept coolant and cuttings flung outwardly by said wheel, a depending flange extending along the inner margin, engaged with the inner edge of the rim at the back and sides of the housing, and extending into the reservoir; and

said eye shield comprising a plate having an upstanding section in front of the housing, a transparent section at the top of the upstanding section inclined diagonally rearwardly for viewing a workpiece on the work table, a rearwardly extending flange at the lower end of the upstanding section extending beneath the bottom portion of the housing, said flange having apertures through which said foot means extends to engage a supporting base, said eye shield plate having a clip on the back side thereof being engaged with the rim at the front of the housing to thereby retain said eye shield in an upright working position;

whereby coolant and cuttings flung outwardly by the wheel are intercepted by said wall and coolant is recycled to the reservoir via the base plate and flange; and

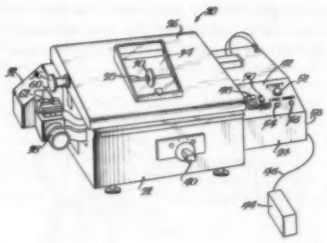
whereby further said side shield is readily removable by upward movement to disengage the flange of the side shield from the rim; and said eye shield is readily removable by upward movement to disengage the clip from the rim followed by downward movement to disengage the foot means from the apertures in the flange of the eye shield.

4,423,569

AUTOMATIC LENS EDGER

Theodore J. Stern, Woodland Hills, Calif., and Wilfredo P. Loreto, Hoffman Estates, Ill., assignors to AIT Industries, Inc., Schaumburg, Ill.

Filed Oct. 2, 1981, Ser. No. 307,852
Int. Cl.³ B24B *9/14*
U.S. Cl. 51—101 LG **8 Claims**



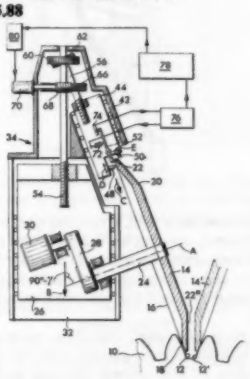
1. An apparatus for grinding the peripheral edges of ophthalmic lenses to a predetermined configuration, comprising a pair of grinding wheels, one a rough grinding wheel and the other a bevel edging wheel, rotating about a first axis; a rotary workholder for supporting and rotating a lens about a second axis generally parallel to the first; first motor means operable to shift said grinding wheels and workholder relative to each other to selectively position the periphery of the lens opposite from a grinding surface of one of said grinding wheels; second motor means cyclically operable to rotate said workholder and to then sequentially (a) move said grinding wheels and workholder toward each other to engage the periphery of the rotating lens with the grinding surface of the wheel opposite from the lens, (b) move said grinding wheels and workholder toward and away from each other in a predetermined manner while the rotating lens is engaged with the grinding surface to grind the periphery of the lens to a predetermined configuration, and (c) move said grinding wheels and workholder away from each other to disengage the lens from the grinding surface; first circuit means, including first and second switches each manually actuable between first and second states, for controlling operation of said first and second motor means, such that actuation of said first switch to its first state operates said first motor means to position the lens opposite from said rough grinding wheel and actuation to its second state operates said first motor means to position the lens opposite from said bevel edging wheel, and actuation of said second switch to its second state initiates a cycle of operation of said second motor means; second circuit means electrically connected with but separate and disconnectable from said first circuit means, said second circuit means interacting with and automatically controlling operation of said first circuit means such that, when said first switch is placed in its first state and said second switch is then actuated to its second state, said second circuit means controls said first circuit means to automatically and sequentially (1) operate said first motor means to position the lens opposite from said rough grinding wheel, (2) operate said second motor means to rough grind the lens, (3) operate said first motor means to position the lens opposite from said bevel edging wheel, and (4) operate said second motor means to bevel edge the lens; and including means for enabling said first circuit means, in the absence of said second circuit means, to control operation of said first and second motor means in response to manual actuation of said first and second switches, whereby upon failure of said second circuit means said apparatus is not disabled and may be manually operated.

4,423,570

APPARATUS FOR DRESSING AND ADJUSTING A GRINDING WHEEL AT A TOOTH FLANK-GRINDING MACHINE

Milan Bartosek, Fahrwangen, Switzerland, assignor to Maag Gear-Wheel & Machine Company Limited, Zürich, Switzerland

Filed Mar. 29, 1982, Ser. No. 362,874
Claims priority, application Switzerland, Apr. 27, 1981, 2725/81
Int. Cl.³ B24B 49/18
U.S. Cl. 51—165.88 2 Claims



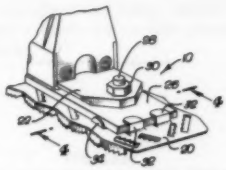
1. An apparatus for dressing and adjusting a dished grinding wheel at a tooth flank-grinding machine for a gear, comprising:
an adjustable grinding wheel support;
a grinding wheel mounted at the grinding wheel support;
said grinding wheel having a working end surface and an outer jacket surface;
a dressing carriage adjustable essentially radially with respect to said grinding wheel;
two dressing tools and a feeler arranged at least approximately diametrically opposite a work location at which there is effective the grinding wheel upon a tooth flank;
one of said dressing tools serving for dressing the working end surface of the grinding wheel;
the other of said dressing tool serving for dressing the outer jacket surface of the grinding wheel;
said feeler serving for scanning the working end surface of the grinding wheel;
drive means for adjusting the grinding wheel support and the dressing carriage, with an adjustment path c of the dressing carriage being greater than an adjustment path b of the grinding wheel support;
control means providing for said drive means and operative as a function of said feeler;
support means for guiding said dressing carriage separately from said grinding wheel support;
the grinding wheel support having an adjustment direction;
the dressing carriage having an adjustment direction;
the adjustment direction of the grinding wheel support enclosing with the adjustment direction of the dressing carriage an acute angle γ which opens in the direction of the lengthwise axis of the grinding wheel;
said acute angle γ coinciding at least approximately with an inclination δ of a rear surface of the grinding wheel in realtion to a radial plane;
the lengthwise axis of the grinding wheel enclosing with the adjustment direction of the grinding wheel support a complementary angle $90°-\gamma$; and
the adjustment path c of the dressing carriage behaving in relation to the adjustment path b of the grinding wheel support so as to satisfy the function $c:b=2\cdot\cos\gamma$.

4,423,571

QUICK CHANGE SHOE ASSEMBLY FOR STRAIGHT LINE SANDER

Karl W. Selander, 2425 Wildwood Dr., Glendora, Calif. 91740, and John J. Smay, 14104 E. MacVista, Whittier, Calif. 91602

Filed Jul. 1, 1981, Ser. No. 279,591
Int. Cl.³ B24B 23/00
U.S. Cl. 51—170 TL 12 Claims



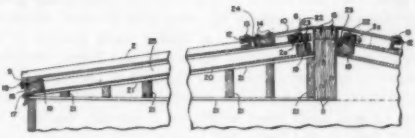
1. A quick change shoe assembly for use with a sanding and filing apparatus having a movable plate comprising:
a base which is configured to be fixedly secured to said movable plate;
a shoe having a substantially rigid member and a working surface carried by the rigid member, said rigid member having a plurality of substantially rigid vertical flaps spaced to receive the base and secure the shoe against lateral movement of the shoe relative to the base, said flaps extend upwardly from the top surface of said shoe and are configured to frictionally secure the edges of said base therebetween; and
a clip adapted to engage the base and secure the shoe member against vertical movement relative to the base;
wherein the shoe is removable from the base without the use of tools and without removing said base from said movable plate.

4,423,572

WATER-TIGHT INSULATED ROOF CONSTRUCTION FOR HOUSE

Edward S. Tor, P.O. Box 70, Fulton, Calif. 95439

Filed Sep. 22, 1980, Ser. No. 189,371
Int. Cl.³ E04D 3/362; E04B 7/02
U.S. Cl. 52—94 3 Claims



1. A water-tight roof construction for a house having a ridge pole and a plurality of covering panels equipped with upper and lower bent edges and comprising:
a plurality of interlocking metallic panels fastened to and completely covering an existing roof deck;
heat insulating means positioned between said panels and said roof deck;
a longitudinal ridge cap flashing positioned along the top central ridge of said roof;
said ridge cap flashing comprising a flat metallic strip overlapping the upper edges of said panels and being fastened to said panels and said roof deck;
a longitudinal wall flashing positioned along the lower edges of said panels;
said wall flashing positioned along the lower edges of said panels;
said wall flashing comprising a metallic strip of right-angular configuration;

one leg of said angular strip being positioned horizontally and being overlapped by the lower bent edges of said panels and being fastened thereto;

the other end of said strip being positioned vertically and being fastened to said panels and the vertical frame of said house;

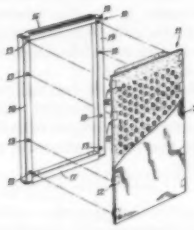
water sealing means inserted between the upper edges of said panels and said existing roof deck.

4,423,573

WALL PANEL WITH REMOVABLE ACOUSTICAL INSERT

Bruce D. Omholt, and Robert L. Knapp, both of Grand Rapids, Mich., assignors to American Seating Company, Grand Rapids, Mich.

Filed Nov. 8, 1978, Ser. No. 958,784
Int. Cl.³ E04B 1/84
U.S. Cl. 52—145 6 Claims



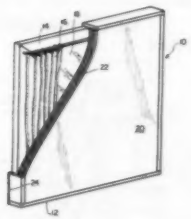
1. A wall panel for an open office system comprising: a peripheral support frame including at least a front surface and adapted to be placed in an upright position; an acoustical insert panel including a central body portion and an integral border of glass fiber, said border having a density substantially greater than the average density of said main body portion, and adding rigidity to said insert panel, at least a major portion of said border overlying said front surface of said frame; receptacle means on said frame defining a plurality of apertures on said front surface; and a corresponding plurality of locking members on said insert panel border for removably coupling said insert panel to said frame, said locking members each comprising a spring clip adapted to be received in one of said apertures, each clip comprising a channel-shaped clip support and a clip member, said clip support being adapted for fitting over said border and having a front plate, a rear plate and a side portion interconnecting said front and rear plates, said plates being pressed against the border of said panel and held thereby, said clip member being carried by the rear plate of an associated support in alignment with an associated aperture on said frame and defining first and second lead-in surfaces and first and second oppositely extending tabs; said clip support defining first and second slots, one of said slots being adapted to diagonally receive one of said tabs of said clip member and the other of said slots including a first slot portion laterally aligned with a side of said first slot of said clip support and a second slot portion aligned with a diagonal of said first slot, whereby said second tab of said clip member may be inserted into said second slot portion and said clip member rotated so that said second tab enters said first slot portion of said second aperture and is locked to said clip support.

4,423,574

INSULATING PANEL FOR THERMAL OPENINGS

Jacquilyn L. Pierre, 8780 42nd St., North, Lake Elmo, Minn. 55042

Continuation of Ser. No. 198,656, Oct. 20, 1980, abandoned.
This application Sep. 22, 1981, Ser. No. 304,688
Int. Cl.² E06B 3/26
U.S. Cl. 52—202 8 Claims



1. In combination, a wall, a thermal opening formed in said wall, said thermal opening having a closure member mounted therein and surrounded by a closure member frame, a covering element such as a curtain hung over said closure member, and a panel for insulating said thermal opening, said panel comprising:

a single sheet of opaque insulating material having height and width dimensions greater than the height and width dimensions of said thermal opening such that said sheet completely covers said thermal opening and overlaps the edges of said thermal opening;

a covering material connected to said sheet at least along a major surface of said sheet to provide structural rigidity to said panel and to enhance the appearance of said panel;

a peripheral framework connected to the edges of said sheet and completely surrounding said sheet, said framework having a width substantially greater than the thickness of said sheet such that said framework extends beyond said sheet in a direction toward said thermal opening for providing space between said sheet and said thermal opening to accommodate said covering element; and

connector means attached between said panel and said wall for removably hanging said panel over said thermal opening such that said framework contacts said wall completely around said thermal opening and holds said sheet at a distance spaced from said closure member by a sufficient distance to accommodate said covering element.

4,423,575

DEVICE FOR FRAME PROFILES

Lars Lagergren, Stora Kvarngatan 49B, Malmö, Sweden, and Wictor C. O. Lindström, Parkgatan 39D, Furulund, Sweden 244 02

Filed Jul. 31, 1981, Ser. No. 288,756
Claims priority, application Sweden, Aug. 14, 1980, 8005739
Int. Cl.² E06B 1/04
U.S. Cl. 52—211 12 Claims

1. A profile assembly for covering a frame piece having a corner comprising first and second adjacent sides, said assembly comprising:

at least one bracket adapted to be mounted on said frame piece;

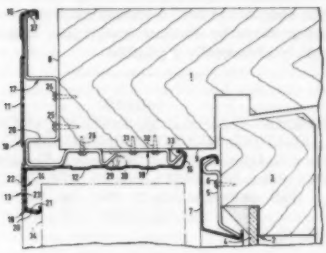
at least two profile members adapted to be retained on said bracket and spaced from said sides of the frame piece;

a first of said profile members being adapted to extend along said first side and having first and second hook portions;

a second of said profile members being adapted to extend along said second side and having a first supporting portion adapted to project generally away from said second side and generally parallel to and in engagement with said first profile member along a second supporting portion

thereof, said second profile member having a third hook portion;

said first supporting portion being operable to engage and grip said second supporting portion and said second hook



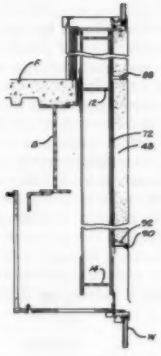
portion and said first and third hook portions being operable to engage and grip said bracket whereby said profile members are securely retained together in a spaced relationship to said frame piece.

4,423,576

BUILDING STRUCTURE AND COMPONENT THEREFOR

Joseph Farina, East Orange, and Antonio Pacelli, West Paterson, both of N.J., assignors to Titan Marble & Stone Co., Totowa, N.J.

Filed Dec. 4, 1980, Ser. No. 213,058
Int. Cl.[2] E04B *1/24*
U.S. Cl. 52—235 **8 Claims**



1. A prefabricated facing panel for a building comprising, in combination:

(a) a building framework with vertical columns;

(b) a frame of structural steel members having at least an upper cord member and a lower chord member with a plurality of web members interconnecting said upper chord member and said lower cord member, said frame secured to and dimensioned to extend between adjacent vertical columns of said building framework;

(c) tab means for mounting facing media, each said tab means attached at one face thereof to one side of said frame, with each opposite face thereof being in substantial planar alignment with corresponding faces of remaining tab means, said tab means having apertured portions extending beyond said structural steel members for accommodating connectors;

(d) a plurality of facing members having an exposed front and a back, the back of said facing member being adjacent the substantially coplanar faces of said tab means, said facing members having blind holes in the back thereof being in alignment with the apertures of said apertured portions of said tab means, and;

(e) a plurality of connector means for connecting said facing members and said tab means, each said connector means adhered to one end thereof to said blind hole, extending therefrom through said apertures of said tab means and secured at the other end thereof to said tab means;

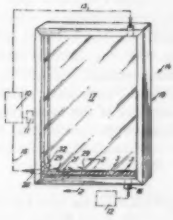
whereby the weight of said facing members is transmitted through said frame to said vertical columns of said building framework.

4,423,577

ARRANGEMENTS FOR SELECTIVELY CHANGING THE RADIATION AND VIBRATION TRANSMISSION PROPERTIES OF PANELS

Constancio Larguia, Carlos Pellegrini 885, Buenos Aires, Argentina

Filed Jul. 8, 1981, Ser. No. 281,360
Claims priority, application Argentina, Jul. 8, 1980, 281696
Int. Cl.[2] E04H *14/00*
U.S. Cl. 52—171 **7 Claims**



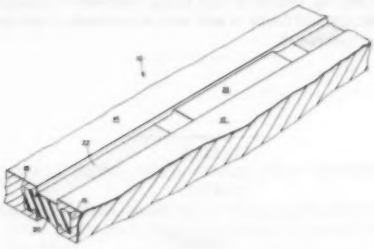
1. In an arrangement for selectively varying the radiation and vibration transmitting properties of a panel usable in buildings and other structures comprising a panel having two substantially parallel sheets of transparent or translucid material mounted in a supporting frame, said two sheets being spaced apart and defining therebetween an intermediate closed space for receiving, from a reservoir, low density solid particulate material having predetermined thermal and/or optical characteristics, said space having an uppermost part and a lowermost part and said lowermost part having at least one end portion, the particulate material being fed into said closed space from the uppermost part thereof and returned to said reservoir from said end portion of the lowermost part thereof, the improvement comprising a multi-perforated bed member defining the bottom wall of said space, said bottom wall being shaped to have alternative crests and valleys parallelly arranged one to another, said crests and valleys being formed by areas of said bed member facing towards and away from said end portion, the multiplicity of perforations in said bed member extending only through said areas facing towards said end portion whereby air injected into said space through said perforations will below particulate material resting on said bed member towards said end portion, while said areas facing away from said end portion help to direct said blown particulate material towards said end portion thus enhancing evacuation of said space.

4,423,578

THERMALLY BROKEN FRAME WITH SEPARATION PREVENTION

William Meigs, and Horace B. McWhirter, II, both of Selma, Ala., assignors to Disco Aluminum Products Co., Inc., Selma, Ala.

Filed Jun. 1, 1982, Ser. No. 384,068
Int. Cl.³ E06B 3/26
U.S. Cl. 52—403 9 Claims



1. A method of manufacturing a thermally broken frame in which the separation of the inner and outer frame members due to a failure of the thermal break material is prevented, comprising the steps of:

producing a frame having an inner frame member and an outer frame member spaced from one another and connected by a long bridging flange;

connecting the inner frame member and the outer frame member together with a thermal break material along the length of the frame members; and

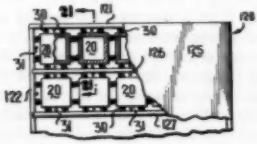
removing the bridging flange at intervals along the length of the frame such that the frame is substantially a thermally broken frame with the thermal break material connecting the inner frame member and the outer frame member and such that the small remaining sections of bridging flange prevent separation of the inner frame member and outer frame member where the thermal break material fails.

4,423,579

THERMAL INSULATING SYSTEM PARTICULARLY ADAPTED FOR BUILDING CONSTRUCTION

Harrison G. Dyar, P.O. Box 185, Tampa, Fla. 33601

Division of Ser. No. 215,083, Dec. 10, 1980, Pat. No. 4,334,395.
This application May 3, 1982, Ser. No. 374,319
Int. Cl.³ E04B 1/78
U.S. Cl. 52—407 12 Claims



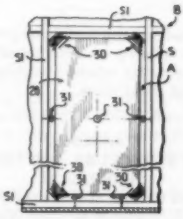
1. A system for insulating building walls, ceilings, floors or like structure comprising first wall means for forming a plurality of hollow insulating panels each defining an interior chamber under negative pressure, second wall means for forming at least a peripheral wall bounding said insulating panels, means between adjacent insulating panels and between insulating panels and said peripheral wall for contacting limited exterior surface areas of said insulating panels and said peripheral wall for supporting the same in generally spaced relationship to each other, means carried by said peripheral wall normally spaced from the exterior surface of each of said insulating panels for contacting a limited exterior surface area of said insulating panels only upon said first-mentioned contacting means becoming inoperative which would in the absence of said said second-mentioned contacting means result in direct contact between said insulating panels and said peripheral wall, and said second-mentioned contacting means being elongated pin-like elements each of relatively small cross-sectional configuration whereby thermal conduction transferred therethrough is substantially negligible.

4,423,580

THERMAL INSULATING SYSTEM PARTICULARLY ADAPTED FOR BUILDING CONSTRUCTION

Harrison G. Dyar, P.O. Box 185, Tampa, Fla. 33601

Division of Ser. No. 215,083, Dec. 10, 1980, Pat. No. 4,334,395.
This application May 3, 1982, Ser. No. 374,320
Int. Cl.³ E04B 1/78
U.S. Cl. 52—407 14 Claims



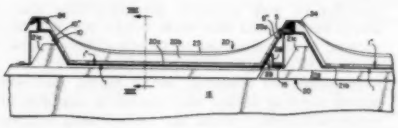
1. A system for insulating building walls, ceilings, floors or like structure comprising wall means for forming a hollow insulating panel defining an interior chamber under negative pressure, means contacting a limited exterior surface area of said panel for supporting said panel in generally spaced relationship from an associated building wall, ceiling, floor or like structure, means normally spaced from the exterior surface of said panel for contacting a limited exterior surface area of said panel only upon said first-mentioned contacting means becoming inoperative which would in the absence of said second-mentioned contacting means result in direct contact between said panel and the associated building wall, ceiling, floor or like structure, said second-mentioned contacting means being an elongated pin-like element of relatively small cross-sectional configuration whereby thermal conduction transferred therethrough is substantially negligible, said panel including a plurality of corners, and said first-mentioned contacting means including a spring at at least one of said corners.

4,423,581

CONCEALED FASTENER, STANDING RIB, METAL ROOF PARTS

Richard D. Miller, 1947 Warren Rd., Niles, Mich. 49120

Filed Dec. 12, 1980, Ser. No. 215,837
Int. Cl.³ E04D 1/00, 1/36
U.S. Cl. 52—519 18 Claims



1. Panel assembly, for the in-situ production of a standing seam roof including a roof panel having a planar section, a semi-trapezoidal folded portion extending across one edge of said planar section and at top of which is formed an inwardly

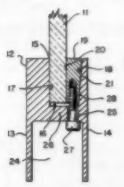
facing, hook-shaped formation, a trapezoidal folded portion extending across one edge of said planar section and at top of which is formed an inwardly facing, hook-shaped formation, a trapezoidal folded portion extending across an opposite edge of said planar section and at top of which is formed an outwardly directed hook-shaped formation, and a horizontal fastening flange extending outwardly from a load supporting leg of said trapezoidal folded portion for fastening the panel to roof purlins wherein said outwardly directed hook-shaped formation defines an acute, cam engagement angle that is greater than an acute angle defined by said inwardly facing hook-shaped formation and which serves with a cam receiving seat formed by an upper horizontal wall portion of said trapezoidal portion located immediately thereunder for enabling a camming snap-in interconnection to be achieved between said cam engagement angle and cam engagement seat of said panel and an inwardly facing hook-shaped formation and upper horizontal wall of a semi-trapezoidal folded portion of another, like roof panel to form a series of panels with said fastening leg being hidden under the semi-trapezoidal folded portion of said like roof panel,

comprising a plurality of said roof panels for interlocking into said series of panels, plural modified roof panels for interlocking into a second series of panels, and upper and lower clamping bars for clamping together adjacent panels of said first and second series in a partially overlapping manner therebetween, wherein said modified panels correspond to said roof panels except for corner portions of said fastening edge, trapezoidal folded portion, outwardly directed hook-shaped formation, and inwardly facing hook-shaped formation which are removed, wherein each of said upper clamping bars has a tab at one end and a slot at an opposite end, said tab being configured for passing through said slot on a like upper clamping bar and interlocking underneath said snap-in interconnection, and wherein each lower clamping bar has an aperture at both ends for enabling fastening thereof to said roof purlins.

4,423,582
GLASS DOOR AND WINDOW STRUCTURES

Leigh T. Yates, Lakewood, N.Y., assignor to Falconer Glass Industries, Inc., Falconer, N.Y.

Filed Jul. 20, 1981, Ser. No. 285,343
Int. Cl.³ E04C *2/38*
U.S. Cl. 52—825 **5 Claims**

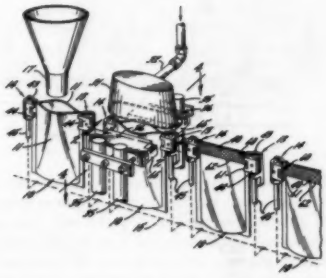


1. A metal framed glass door and window structure comprising a metal frame having a glass receiving groove with one smooth side parallel to a face surface of said frame and an opposite smooth side sloping slightly inwardly toward a bottom of the groove, a glass sheet in said glass receiving groove bearing against the said one side and spaced from the said other sloping side, an elongate rigid metal shoe fitted in the glass receiving groove between the glass and said other sloping side, said shoe having a flat smooth face bearing on the glass surface and a sloping smooth face corresponding in slope to and bearing on the said opposite smooth sloping side of the frame and means in said frame engaging said shoe to draw it slidably relatively to and in direct contact with said glass and frame into said glass receiving groove generally parallel to the glass sheet in tight sealing engagement between the glass and said other sloping side to engage the glass in non-resilient engagement between the metal sidewall of the glass receiving groove and said metal shoe whereby said glass, frame and shoe form a single non-yielding structural entity.

4,423,583
PACKAGING MACHINE WITH POUCH GRIPPING CLAMPS

Norman W. Carey, Sarasota, Fla., assignor to Rexham Corporation, New York, N.Y.

Filed Jul. 23, 1981, Ser. No. 286,180
Int. Cl.³ B65B *51/14*
U.S. Cl. 53—373 **2 Claims**



1. Apparatus for handling an upright pouch having upright side margins and for forming a top heat seal along the extreme upper end portion and along the top margin of the pouch, said apparatus comprising a pair of clamps for releasably gripping opposite side margins of the pouch, means for advancing said clamps and the gripped pouch along a predetermined path, each of said clamps having upper opposing jaws and having lower opposing jaws spaced below the upper jaws, a pair of opposing heated seal bars disposed on opposite sides of said path for heat sealing the extreme upper end portion of the pouch between the pair of clamps, means for moving said bars to active positions in which the bars contact opposite sides of the extreme upper end portion of the pouch to form said top heat seal, said sealing bars having oppositely extending portions projecting toward said side margins and spaced below the top ends of the bars and extending into the spaces between the upper and lower jaws of said clamps when said bars are in said active positions, the upper and lower jaws of each clamp gripping said pouch at elevations respectively located above and below the bottom margin of the top heat seal formed by said bars.

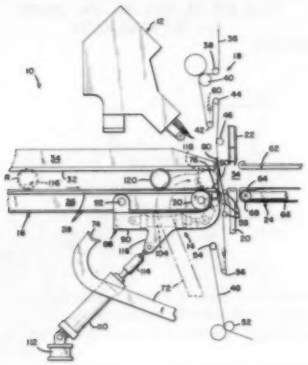
4,423,584
ROLL-WRAPPING APPARATUS WITH LABEL INSERTER AND METHOD

Bertram F. Elsner; Frank Elsner, Jr., and Robert E. Molison, all of Hanover, Pa., assignors to Elsner Engineering Works, Inc., Hanover, Pa.

Filed Feb. 13, 1981, Ser. No. 234,572
Int. Cl.³ B65B *11/04, 11/08, 61/20*
U.S. Cl. 53—415 **16 Claims**

11. Apparatus for forming a snug transparent film envelope surrounding a roll with a flexible non-rigid label sandwiched between the roll and the envelope, the label having a circumferential extent less than the circumference of the roll, the apparatus including a work area, a positive film feed on one side of the work area for supplying a pre-measured length of film to a curtain extending across the work area, a demand film feed on the opposite side of the work area for supplying film to the other side of the curtain on demand, a label gripper, a drive for moving the label gripper from a label pickup position remote from the work area to a label release position adjacent the curtain so that the gripper engages a flexible non-rigid label

at the pickup position and carries the label to a position in front of the curtain in the path of the roll, and means for moving a roll located in front of the curtain against the label and curtain to wrap the curtain over the roll, fold the label over the roll so as to sandwich the label between the curtain and roll and form a frictional connection there between with the label extending partially around the roll and move the roll, curtain and label past the film seal means as film is first drawn from said positive



film feed to rotate the roll and label in a first direction by said friction connection and film is then drawn from said demand film feed to rotate the roll and label in the opposite direction by said friction connection, and tensioning means maintaining said curtain taut during film feeding and forming of the envelope, whereby actuation of the film seal means forms a seal across the curtain closing a snug envelope on the roll and label with the label held in a known position in the envelope and a seal re-establishing the curtain.

4,423,585

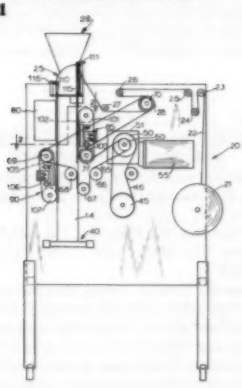
PACKAGE FORMING APPARATUS AND METHOD

Claude E. Monsees, and William W. Simpson, both of Durham, N.C., assignors to Rexham Corporation, Charlotte, N.C.

Filed Aug. 20, 1981, Ser. No. 294,551

Int. Cl.³ B65B *9/14, 41/12*

U.S. Cl. 53—451 **15 Claims**



1. In a package forming and filling machine, in combination:

(a) a frame structure;

(b) a former for shaping packaging material into tubular form;

(c) means for sealing and severing said material into individual packages having side, top and bottom seals;

(d) means for filling each successive package after forming of the side and bottom seals thereof and before forming the top seal thereof;

(e) means for holding open the tube form making up each said successive package during the filling thereof comprising:

(i) a pair of oppositely positioned magnetizable bars supported on said frame structure and positioned so as to extend into said tubular form during the forming and filling of each said successive package; and

(ii) a pair of magnetic field source means supported from said frame structure with one such source means being adjacent each said magnetizable bar and providing magnetic fields positioned so as to magnetically attract and draw each said bar outwardly so as to maintain said tubular form and each said successive package formed therefrom open during the filling thereof;

(f) a belt drive assembly oppositely associated with each said magnetic field source means and supported by said frame structure including for each said belt drive assembly sets of rollers over which the belt associated therewith runs when moving adjacent the respective magnetizable bar associated therewith, each said assembly having a belt engaging the outer surface of said tube form and running between the respective magnetic field source means with which such belt is associated and the respective magnetizable bar attracted thereto;

(g) means to drive each said belt at selected times coordinated with the forming, sealing and filling of packages to pull packaging material through said former; and

(h) means adjustably mounting said rollers enabling the positioning of said rollers to be adjusted with respect to the position of the respective magnetic field source means associated therewith whereby to maintain a selected air gap between said respective magnetic field source means and the respective magnetizable bar associated therewith.

4,423,586

PNEUMATIC YARN SPLICING DEVICE

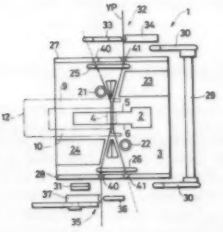
Isamu Matsui, Kyoto, Japan, assignor to Mutata Kikai Kabushiki Kaisha, Kyoto, Japan

Filed Oct. 28, 1982, Ser. No. 437,276

Claims priority, application Japan, Oct. 29, 1981, 56-161347[U]

Int. Cl.³ D01H *15/00*

U.S. Cl. 57—22 **7 Claims**



1. A pneumatic yarn splicing device comprising:

a bracket;

a yarn splicing member mounted on said bracket and having a pair of side faces and a yarn splicing hole extending transversely between said side faces, said yarn splicing member including an air ejection nozzle for ejecting a compressed air flow into said yarn splicing hole; and

a pair of yarn presser levers pivotably mounted with respect to said bracket and each having a first portion for controlling the amount of air flowing out of the open ends of the

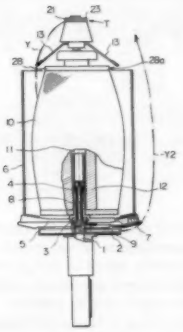
yarn splicing hole and a second portion for nipping the yarn introduced in the yarn splicing hole in cooperation with the bracket.

4,423,587

DOUBLE TWISTING FRAME FOR FLANGE BOBBIN

Yoshihisa Inoue, Ibaragi, Japan, assignor to Murata Kikai Kabushiki Kaisha, Japan

Filed May 14, 1981, Ser. No. 263,789
Claims priority, application Japan, May 14, 1980, 55-66774
Int. Cl.³ D01H *7/86*
U.S. Cl. 57—58.86 **4 Claims**



1. In combination a double twister having a top end and an axis of rotation and including a rotatable spindle having an axis of rotation on the axis of rotation of the double twister, a rotary board having an axis of rotation congruent with the axis of rotation of the spindle one side of which is secured to the spindle for rotation therewith and having a yarn passage extending first axially from the other side thereof and then radially through the outer periphery thereof, a first hollow shaft secured to the rotary board on the axis of the spindle extending from the other side of the rotary board, the inside of which is in communication with the yarn passage in the rotary board, a stationary board sleeved over the first shaft, means operable between the first shaft and rotary board for permitting relative rotation therebetween, said stationary board including means for mounting a flange bobbin on the axis of rotation of the spindle, and a cylindrical yarn supply pot having a lower end secured to the stationary board and an upper end for receiving a yarn supply flange bobbin positioned therein on the axis of rotation of the spindle, a tensor positioned in spaced relation to the top end of the double twister for receiving yarn unwound from a flange bobbin placed in the double twister and providing a tension on the yarn as it proceeds axially downwardly through the double twister on the axis thereof and a flyer rotatably mounted on the axis of the double twister between the tensor and the double twister including means for guiding the yarn past the upper flange of a flange bobbin placed in the double twister as it passes between the flange bobbin in the double twister and the tensor whereby fluffs are not formed in the yarn.

4,423,588

APPARATUS FOR PAYING OFF WIRE FROM A BOBBIN

Ricardo A. M. Garcia, Ciudad Satelite, Mexico, assignor to Trimak Equipment Ltd., George Town, Grand Cayman, British West Indies

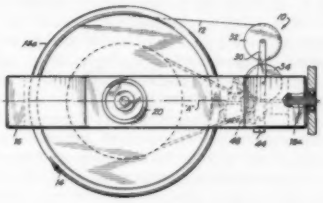
Filed Oct. 22, 1981, Ser. No. 313,792
Int. Cl.³ D07B *7/02*
U.S. Cl. 57—127.5 **16 Claims**

1. Apparatus for paying off wire from a bobbin mounted for rotation about its longitudinal axis in a high speed strander cradle, comprising:

(a) wire guide means for guiding the wire from the bobbin along a path substantially normal to the axis of the bobbin to a path substantially coincident with the longitudinal axis of the cradle;

(b) adjusting means for presetting said wire guide means to establish a reference tension in the wire;

(c) braking means for applying variable braking torques to the



bobbin, said wire guide means being in the nature of a feedback device continuously comparing the actual tension in the wire with the reference tension and moving about an equilibrium position as a function of the deviations of the actual tension in the wire from the reference tension; and

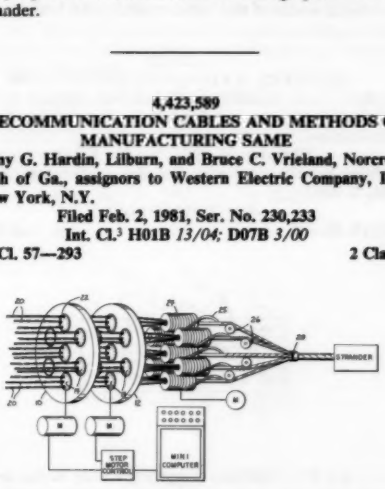
(d) actuating means connected to said wire guide means and said braking means to continuously adjust the torque on the bobbin to thereby maintain the tension in the wire substantially equal to the reference tension during operation of the strander.

4,423,589

TELECOMMUNICATION CABLES AND METHODS OF MANUFACTURING SAME

Tommy G. Hardin, Lilburn, and Bruce C. Vrieland, Norcross, both of Ga., assignors to Western Electric Company, Inc., New York, N.Y.

Filed Feb. 2, 1981, Ser. No. 230,233
Int. Cl.³ H01B *13/04*; D07B *3/00*
U.S. Cl. 57—293 **2 Claims**



1. A method of manufacturing a telecommunication cable having improved insertion loss characteristics comprising the steps of forming a plurality of wire units by advancing groups of twisted wire pairs or quads through twisting stations wherein each group is alternately twisted in clockwise and counterclockwise rotary directions with both the frequency and amplitude of the twisting being modulated; stranding the plurality of units so formed together into a cable core; and forming a conductive sheath around the core, whereby the cable is manufactured with each wire pair or quad of a unit located proximal to the conductive sheath at irregularly spaced intervals with longer pair or quad sections created by twist reversal dwell time in proximity with the sheath distributed among a relatively large number of wire pairs or quads.

4,423,590

BALLOON CONTROL RING

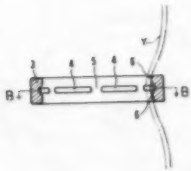
Kunio Tsukamoto, and Michio Shibano, both of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Aug. 4, 1981, Ser. No. 289,904

Claims priority, application Japan, Aug. 9, 1980, 55-112903[U]

Int. Cl.³ D01H 1/42

U.S. Cl. 57—354 5 Claims



1. A balloon control ring to control ballooning of yarn being spun out from a spinner or twister, comprising an innner circumferential surface of said balloon control ring, means defining at least one annularly extending, aligned plurality of grooves formed in said inner circumferential surface, said inner circumferential surface defining annularly extending yarn contacting surfaces respectively above and below each said aligned plurality of grooves, and respective bank portions disposed between and forming the ends of adjacent one of said grooves, whereby air flowing within and along said grooves is diverted inwardly of said balloon ring by said bank portions.

4,423,591

BRACELET, WATCHBAND OR LIKE LINK

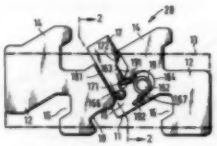
Bernhard Tesch, Ennetbürgen, Switzerland, assignor to Zwyro A.G., Schaffhausen and Tesch A.G., Ennetbürgen, both of, Switzerland

Filed Apr. 26, 1982, Ser. No. 372,081

Claims priority, application Fed. Rep. of Germany, Apr. 27, 1981, 3116585

Int. Cl.³ F16G 13/18

U.S. Cl. 59—80 15 Claims



1. A link for a wristband comprising a body having opposite longitudinal edge portions and opposite transverse edge portions, one of said longitudinal edge portions defining a transversely directed projection, another of said longitudinal edge portions defining a recess generally aligned with and contoured to the general configuration of said projection whereby said link and similar links can be joined in projection-recess interconnected relationship, a transversely disposed guide channel in said body opening outwardly through an associated longitudinal edge portion, a slider mounted for reciprocal sliding movement in said guide channel and transversely relative to said associated longitudinal edge portion between first and second projected positions at each of which a terminal end portion of said slider is disposed outwardly of said associated longitudinal edge portion, spring means for biasing said slider to said first projected position, means for confining said spring against inadvertent dislodgement from a spring-receiving recess of said body, and said confining means being defined by a portion of said slider.

4,423,592

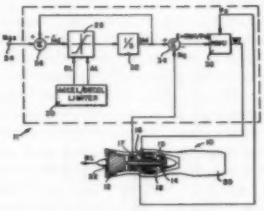
FUEL CONTROL SYSTEM FOR GAS TURBINE ENGINE

Rowland M. Evans, Terrasse Vaudreuil, Canada, assignor to Aviation Electric Ltd., Montreal, Canada

Filed Nov. 28, 1980, Ser. No. 210,938

Int. Cl.³ F02C 3/10, 9/28

U.S. Cl. 60—39.161 15 Claims



1. A fuel control system for a gas tubine engine comprising:

means for generating an actual speed signal proportional to the actual turbine speed of the gas turbine engine;

means for generating a scheduled speed signal proportional to a desired engine output power;

means for generating a demanded speed signal proportional to the time integral of a difference signal;

means for generating said difference signal proportional to the difference between said scheduled speed signal and said demanded speed signal;

means for generating an error signal proportional to the difference between said demanded speed signal and said actual speed signal; and

means for controlling the fuel flow to the gas turbine engine as a function of said error signal.

4,423,593

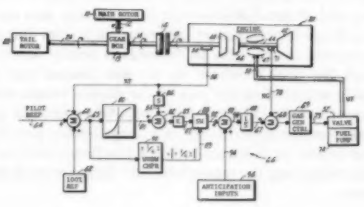
FUEL CONTROL FOR CONTROLLING HELICOPTER ROTOR/TURBINE ACCELERATION

Raymond D. Zagranski, Somers, and James J. Howlett, North Haven, both of Conn., assignors to Chandler Evans Inc., West Hartford, Conn.

Filed Apr. 16, 1982, Ser. No. 369,301

Int. Cl.³ F02C 9/28

U.S. Cl. 60—39.161 2 Claims



1. An engine control for a free turbine gas engine, comprising:

speed means for providing an actual speed signal indicative of the speed of the free turbine;

fuel valve means responsive to a fuel command signal provided thereto for metering fuel to the engine; and

fuel controlling signal processing means responsive to said speed means for providing a reference speed signal indicative of a desired speed of the turbine, for comparing said

reference speed signal with said actual speed signal and providing a speed error signal indicative of the difference in said actual speed signal from said reference speed signal, and for providing a fuel command signal to said valve means in response to said speed error signal;

characterized by:

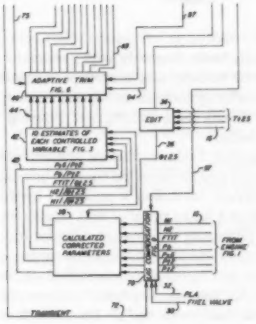
said signal processing means comprising means for providing a desired acceleration signal as a function of said speed error signal, for providing, in response to said actual speed signal, an actual acceleration signal indicative of actual acceleration of the turbine, for providing, in response to said desired acceleration signal and said actual acceleration signal, an acceleration error signal indicative of the difference in said actual acceleration signal from said desired acceleration signal, and for providing said fuel command signal in response to said acceleration error signal.

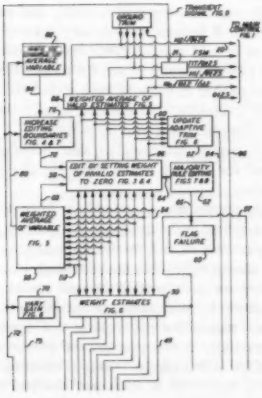
4,423,594

ADAPTIVE SELF-CORRECTING CONTROL SYSTEM

Stanley H. Ellis, Palm Beach Gardens, Fla., assignor to United Technologies Corporation, Hartford, Conn.

Filed Jun. 1, 1981, Ser. No. 269,196
Int. Cl.³ F02C *9/28*
U.S. Cl. 60—39.28 **9 Claims**




TRANSIENT SIGNAL FIG. 5
GROUND TRIM
WEIGHTED AVERAGE OF VALID ESTIMATES FIG. 4
INCREASE EDITING BOUNDARIES FIG. 4 & 7
UPDATE ADAPTIVE TRIM FIG. 6
EDIT OF SETTING WEIGHT OF INVALID ESTIMATES TO ZERO FIG. 3 & 4
MAJORITY VALUE SETTING FIGS 7 & 8
WEIGHTED AVERAGE OF VARIABLE FIG. 3
FLAG FAILURE
WEIGHT ESTIMATES FIG. 6

1. An electronic control system for controlling the operation of a turbine type power plant which controls fuel to and geometry of the power plant and utilizes a plurality of sensors for monitoring predetermined engine operating variables, means for synthesizing parameters from signals produced by said sensors indicative of parameters used by said control system, for compensating for deterioration in said power plant, for compensating for errors in said geometry and for detecting a failed sensor, said means including:

a plurality of sensors having feedback means monitoring a plurality of engine operating variables, function generator means responsive to said feedback means for generating signals that are multiple estimates of the control variables,

means for applying predetermined weighting factors to said corrected estimated signals for giving priority to any given estimate as a function of the accuracy of said estimate but limited to a maximum weighting factor value to prevent any one sensor from having a voting majority,

averaging means responsive to said weighted estimate signals by dividing the sum of said weighted estimates by the sum of the corresponding weighting factors to produce weighted average estimate signals,

adaptive trim means, responsive to said multiple estimates of said control variables and the value of the weighted average, by gradually reducing the error between independent estimates and the corresponding weighted average estimate,

means for compensating for calculation error and integrator drift to prevent the adaptive trim from altering the ground trim setting of the control by feedback means that drives the weighted sum of adaptive trims to zero,

editing means for systematically comparing said weighted estimate signals with predetermined boundary limits surrounding the weighted average estimate, means for eliminating any of said estimated signals falling outside of said boundaries while allowing said weighted estimates to be reinstated when falling within said boundary limits,

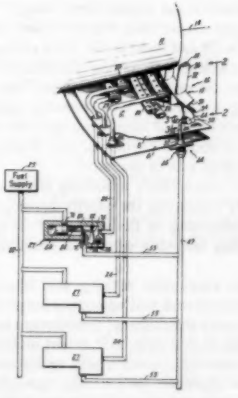
actuator means responsive to said weighted average estimate signals for controlling the fuel to the engine and the geometry of the engine.

4,423,595

AUGMENTOR RESIDUAL FUEL DRAIN APPARATUS

Howard J. McLean, North Palm Beach, Fla., assignor to United Technologies Corporation, Hartford, Conn.

Filed May 27, 1982, Ser. No. 382,851
Int. Cl.³ F02K *3/10*
U.S. Cl. 60—261 **9 Claims**



1. In a gas turbine engine having an axis and including means defining a turbine exhaust gas flow path, an augmentor system comprising:

fuel spray means disposed in said flow path;

fuel supply means in fluid communication with said spray means for supplying fuel thereto;

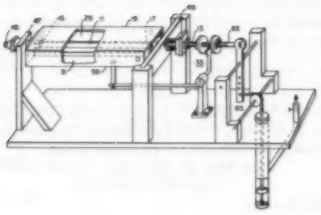
a flameholder downstream of said spray means;
fuel drain means including drain conduit means having outlet means within said flameholder; and
valve means in operable relationship with said drain conduit means and with said fuel supply means said valve means comprising means for shutting off the flow of fuel to said spray means and for providing fluid communication between said spray means and said drain conduit means upon the shutting off of fuel flow to said spray means for draining residual fuel from said spray means into said flameholder.

4,423,596

THERMAL ENGINE

Thomas E. Karnes, 4529 18th St., and Robert J. Trupin, 468 Elizabeth St., both of San Francisco, Calif. 94114

Filed Dec. 28, 1981, Ser. No. 334,728
Int. Cl.³ F03G 7/06
U.S. Cl. 60—527 12 Claims



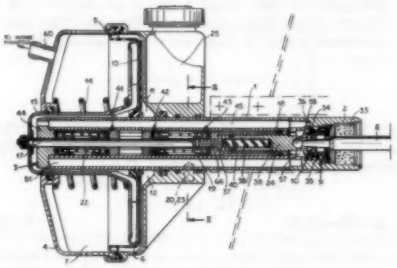
8. A nitinol thermal engine comprising
an elongated strip of nitinol material secured at one end to an output shaft and fixed at the other end against movement,
a pair of chambers containing different temperature liquids disposed on opposite sides of said strip with said strip forming a common wall between said chambers, said chambers and said strip being partially rotatable in either direction about a horizontal axis disposed proximate the longitudinal axis of said strip,
means for concurrently absorbing and partially storing and partially translating the energy developed by the longitudinal shortening of the strip, said energy storage means elongating said strip when it is thermally cycled to elongate,
means for alternately rocking said chambers in opposite directions around said horizontal longitudinal axis to alternately apply the different temperature liquids to the opposite sides of said strip, said means including a mechanical interconnection between said reciprocating output shaft and said chambers for partially translating the shortening of said strip and transforming the stored energy into the alternate partial rotational motion of said chambers about said horizontal longitudinal axis,
means secured to said output shaft for utilizing the excess energy developed during the longitudinal shortening of the nitinol material and not utilized to elongte the strip or to rotate the chambers.

4,423,597

HYDRAULIC BRAKE ASSEMBLY WITH PNEUMATIC POWER ASSIST

Norbert Spielmann, Ebern, Fed. Rep. of Germany, assignor to Fag Kugelfischer Georg Schäfer & Co., Schweinfurt, Fed. Rep. of Germany

Filed Feb. 24, 1981, Ser. No. 237,674
Claims priority, application Fed. Rep. of Germany, Feb. 26, 1980, 3007148
Int. Cl.³ B60T 13/00
U.S. Cl. 60—547.1 16 Claims

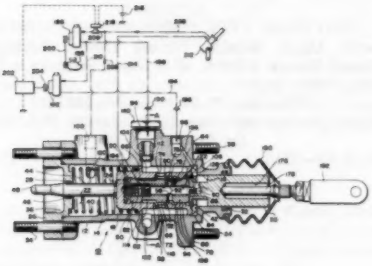


1. Hydraulic brake assembly with pneumatic power assist for use in a motor vehicle, said assembly comprising:
a substantially cylindrical elongated housing;
fastening means for attaching said housing to the frame of said vehicle;
tandem master brake cylinders aligned with one another, rigid with and surrounded by said housing;
actuator means including a push rod operatively linked at one end to a brake pedal of said vehicle and at an opposite end to pistons of said master cylinder for operating same;
power-booster means operatively connected to said master cylinder and to the intake manifold of the engine of said vehicle for assisting, with suction power supplied by said manifold, said push rod in the operation of said master cylinders, said power-booster means including a pair of annular chambers separated by a membrane and concentrically surrounding said housing and said master cylinders, and a tension rod axially traversing a substantial portion of said master cylinders and linked to said membrane power-booster means for transmitting a tensile force to said pistons to aid said push rod in the actuation of said master cylinders, said housing axially traversing said annular chambers and said membrane;
reservoir means attached to said housing between ends thereof for storing brake fluid for charging said master cylinders;
hydraulic-circuit means extending from said master cylinders to wheel brake cylinders for guiding brake fluid upon the operation of said master cylinders;
a valve casing rigid with said housing;
first valve means mounted in said casing and operatively connected to said actuator means and to said power-booster means for controlling the operation thereof at least partially in response to axial motion of said push rod, said first valve means being connected to said power-booster means by at least one channel running through said housing; and
second valve means in said hydraulic-circuit means responsive to the axial motion of said push rod for closing a circuit path between said reservoir means and said master cylinder and for opening another path between same and said brake cylinders upon an inward axial shift of said push rod.

4,423,598
WORKING FLUID SUPPLY SYSTEM FOR A HYDRAULIC POWER BOOSTER AND A POWER STEERING SYSTEM

Yasufumi Ideta, Tokyo, Japan, assignor to Nissan Motor Company Limited, Yokohama, Japan

Filed Nov. 12, 1980, Ser. No. 206,106
Claims priority, application Japan, Nov. 13, 1979, 54-145982
Int. Cl.³ F15B *15/18*
U.S. Cl. 60—547.3 14 Claims



1. A working fluid supply system for an automotive vehicle, comprising:

(a) a first pump driven by an engine of the automotive vehicle, said first pump having a fluid discharge rate which decreases below a predetermined level in response to an engine speed beyondd a predetermined level;

(b) a second pump;

(c) control means for operating said second pump when the discharge rate of said first pump is less than said predetermined level; and

(d) a hydraulic power boosting apparatus having:

(1) a first inlet port communicating with said first pump and supplied with pressurized working fluid therefrom;

(2) a second inlet port communicating with said second pump and supplied with pressurized working fluid therefrom when the discharge rate of said first pump is less than the predetermined level;

(3) an outlet port communicating with a power steering unit;

(4) a drain port communicating with fluid reservoir means for restoring the fluid thereto;

(5) a first passageway communicating said first inlet port with said outlet port through a first valve;

(6) said first valve being open to permit the flow of the working fluid therethrough when a brake pedal is in a released position and being closed to prevent the flow of the working fluid therethrough when the brake pedal is in an applied position;

(7) a second passageway communicating said first inlet port with a power boosting chamber through a second valve, said power boosting chamber defined within said power boosting apparatus;

(8) said second valve being closed to prevent the flow of the working fluid therethrough when the brake pedal is in a released position and being open to permit the flow of the working fluid therethrough when the brake pedal is in an applied position;

(9) a third passageway communicating said power boosting chamber with said drain port through a third valve;

(10) said third valve being open to permit the flow of the working fluid therethrough when the brake pedal is in a released position and being closed to prevent the flow of the working fluid therethrough when the brake pedal is in an applied position; and

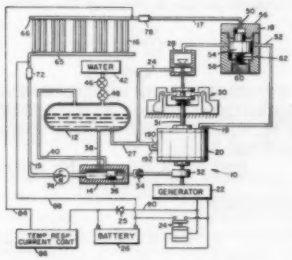
(11) a fourth passageway communicating said second inlet port with said power boosting chamber;

(e) said power steering unit being operated by the pressurized working fluid supplied from said outlet port and being in communication with said fluid reservoir means for restoring the working fluid thereto.

4,423,599
SOLAR ENERGY UTILIZATION APPARATUS AND METHOD

Charles C. Veale, 170 McKnight Dr., Laguna Beach, Calif. 92651

Filed Aug. 1, 1980, Ser. No. 174,416
Int. Cl.³ F03G *7/02*
U.S. Cl. 60—641.8 20 Claims



1. A solar to mechanical energy conversion system comprising, in combination:

means in the form of a solar energy collector for converting an inlet stream of water to an outlet flow of steam;

control means for preventing initiation of water and steam flow at steam pressure below a selected pressure and after initiation of water and steam flow, for terminating water and steam flow at pressures less than a given pressure; and

heat engine means responsive to said flow of steam above the selected pressure for generating a mechanical energy output.

4,423,600
METHOD FOR PRESERVATION OF LIVING ORGANIC TISSUE BY FREEZING

Joan J. McKenna, 2811 Grove St., Berkeley, Calif. 94703

Filed Dec. 10, 1982, Ser. No. 448,467
Int. Cl.³ F25D *25/00*
U.S. Cl. 62—62 11 Claims

1. A process for the freezing of organic tissue which comprises lowering the pressure of the atmosphere in contact with said tissue to release from said tissue at least a substantial portion of the gaseous matters dissolved therein with substantially no vaporization of water from said tissue, while cooling said tissue to a temperature at or below the freezing point thereof and agitating said tissue to disrupt crystal growth within said tissue.

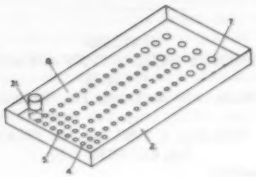
4,423,601
WATER DEFROST EVAPORATOR WITH NON-UNIFORM WATER DISTRIBUTION

Daniel E. Kramer, 2009 Woodland Dr., Yardley, Pa. 19067

Filed Jul. 16, 1981, Ser. No. 283,969
Int. Cl.³ F25D *21/12*
U.S. Cl. 62—82 4 Claims

1. An improved forced air cooling evaporator including a frosting coil comprising a bundle of substantially straight spaced apart tubes joined at their ends with U bends, said bundle having end portions adjacent the U bends and central portions; means for defrosting the coil by applying water to it,

wherein the improvement comprises means for supplying water at a higher unit rate to an end portion and at a lower unit



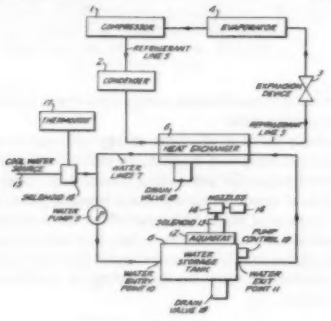
rate to a central portion to speed up the defrost rate of the end portion.

4,423,602

SYNERGISTIC AIR CONDITIONING AND REFRIGERATION ENERGY ENHANCEMENT METHOD

Bennett M. Venable, Northport, N.Y., assignor to Certified Energy Corp., Jericho, N.Y.

Filed Jan. 8, 1982, Ser. No. 338,183
Int. Cl.³ F25B 27/02
U.S. Cl. 62—238.6 2 Claims



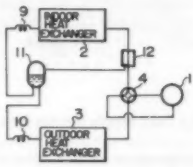
1. A refrigeration system including a compressor, a condenser, expansion means and an evaporator connected in a refrigerant flow relationship, and, additionally, a cooling water storage and recirculation system comprising: a heat exchanger connected between the condenser and the expansion means; a water storage tank; a pump; first temperature responsive control means operatively associated with the storage and recirculation system for preventing water flow therein responsive to sensing a predetermined low temperature and permitting flow therein responsive to sensing a predetermined high temperature, the first temperature responsive control means including a thermostat and a first solenoid valve; second temperature responsive control means operatively associated with the storage and recirculation system for relieving pressure therein responsive to sensing of a predetermined low temperature and increasing pressure therein responsive to sensing a predetermined high temperature, the second temperature responsive control means including an aquastat and a second solenoid valve; first pressure responsive control means operatively associated with the heat exchanger for draining water from the storage and recirculation system upon sensing a predetermined low water pressure therein and for retaining water in the system upon sensing a predetermined high water pressure therein, the first pressure responsive control means including a first drain valve; second pressure responsive control means operatively associated with the water storage tank for draining water from the storage and recirculation system upon sensing a predetermined low water pressure and retaining water therein upon sensing a predetermined high water pressure, the second pressure responsive control means including a second drain valve; and, a pressure sensitive pressure responsive pump control means for activating said pump to add water to the system upon sensing a water pressure above a preselected high value and for deactivating said pump to drain water from the system upon sensing a water pressure below a preselected low value whereby cooler water is automatically drained from the storage and recirculation system at a preselected low temperature and warmer water is automatically added to the storage and recirculation system at a preselected high temperature.

4,423,603

HEAT PUMP TYPE REFRIGERATION SYSTEM

Kensaku Oguni, Shimizu; Hiromu Yasuda, Shizuoka, and Sigeaki Kuroda, Shimizu, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 27, 1982, Ser. No. 382,561
Claims priority, application Japan, May 29, 1981, 56-81172
Int. Cl.³ F25B 13/00
U.S. Cl. 62—324.1 12 Claims



1. A heat pump type refrigeration system comprising a heat pump type refrigeration circuit including: a compressor having a suction-side line and a discharge-side line; a four-way valve; an outdoor heat exchanger and an indoor heat exchanger to which said suction-side line and discharge-side line of said compressor are connected switchably through said four-way valve, the other ends of said heat exchangers being connected to each other through a first pressure reducer, bottom of the gas-liquid separator and a second pressure reducer; a refrigerant tank disposed in a pipe interconnecting said four-way valve and said indoor heat exchanger, in a heat exchanging relation to the pipe interconnecting the four way valve and the indoor heat exchanger; and a pipe interconnecting an upper portion of said gas-liquid separator and said refrigerant tank; said refrigeration system further comprising a bi-component refrigerant mixture confined in said refrigerant circuit and consisting of two refrigerants of different boiling temperatures.

4,423,604

ADJUSTABLE SPACER FOR CONTACT PLATE FREEZER

Eugene Riley, Macon, Mo., assignor to Banquet Foods Corporation, Macon, Mo.

Filed Sep. 14, 1982, Ser. No. 418,007
Int. Cl.³ F17C 5/14
U.S. Cl. 62—341 10 Claims

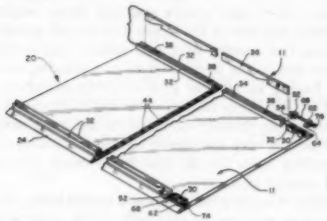
1. In a contact plate freezer, for freezing products brought in contact with a pair of consecutive freezing plates on a stack of freezing plates, said stack including a pair of consecutive freezing plates consisting of a first and a second freezing plate, the improvement comprising:

spacer means, adjustable to the size of the products, mounted on said first freezing plate for separating said second freezing plate from said first freezing plate, a distance substantially equal to the height of the products, said spacer means comprising:

ramp means mounted on said first freezing plate;

a plurality of spacer bars overlying said ramp means, said spacer bars determining the separation distance be-

tween said first freezing plate and said second freezing plate; and



pulling means, each corresponding to one of said spacer bars, for pulling said spacer bars along said ramp means, thereby adjusting the separation distance.

4,423,605

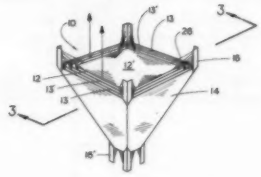
RADIATIVE COOLER

Stanley W. Petrick, La Canada, and Ramon D. Garcia, Alhambra, both of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jul. 17, 1981, Ser. No. 284,289

Int. Cl.³ F25B *21/02*

U.S. Cl. 62—467 R **10 Claims**



1. An improved radiative cooling device comprising:

a housing for said device; and

means mounted in said housing for serially reflecting reduced quantities of emissive radiation including a series of spaced shields characterized by relatively low emissivity and having planar reflective surfaces arranged in mutually angularly related planes defining between adjacent shields V-shaped spaces communicating with a common heat sink, said reduced quantities of radiation being reflected by said surfaces through the V-shaped spaces to said common heat sink.

4,423,606

METHOD FOR MECHANICAL STITCH FORMATION AS WELL AS KNITTING MACHINE FOR CARRYING OUT THE METHOD

Ulrich Hofmann, Herderstr. 99, D-7470 Albstadt 1, Fed. Rep. of Germany

Filed Mar. 11, 1980, Ser. No. 129,366

Claims priority, application Fed. Rep. of Germany, Mar. 14, 1979, 2909963

Int. Cl.³ D04B *9/02, 7/00, 35/02*

U.S. Cl. 66—13 **10 Claims**

10. A method for forming a stitch with at least one continuous thread comprising:

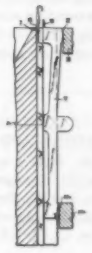
(a) catching a thread by the hook of a knitting needle during its most advanced longitudinal stroke position,

(b) holding fast a previously formed stitch by the transport hook of a plate,

(c) moving said thread rearwardly through said previously formed stitch by the longitudinal retraction of said needle thereby forming a new stitch around the shaft of said needle,

(d) releasing said previously formed stitch above said retracted hook of said needle by retracting said plate,

(e) moving said plate transversely toward said needle causing engagement of said plate and said transport hook with said needle.



(f) advancing said needle with said engaged plate and transport hook to said needle's most advanced stroke position, and

(g) widening said new stitch to a size sufficient to allow subsequent retraction of said needle therethrough by moving said plate substantially perpendicular from said needle shaft while said needle shaft is in its most advanced longitudinal stroke position prior to the subsequent retraction of said needle.

4,423,607

WASH TUB OF PLASTICS MATERIAL FOR CLOTHES WASHING MACHINES

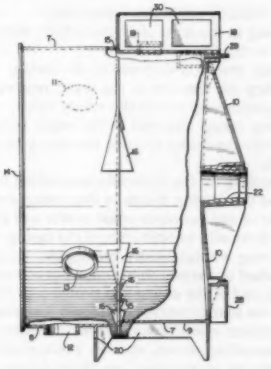
Dino Munini, Pordenone, Italy, assignor to Industrie Zanussi S.p.A., Pordenone, Italy

Filed Jul. 6, 1981, Ser. No. 281,203

Claims priority, application Italy, Jul. 3, 1980, 45722 A/80

Int. Cl.³ D06F *23/02, 37/04, 37/22*

U.S. Cl. 68—23.2 **6 Claims**



1. A wash tub for use with a domestic clothes washing machine of the front loading type, said wash tub comprising a single and integral body formed of plastic material, said body comprising:

a cylindrical member including a front cylindrical portion and a rear cylindrical portion having a diameter smaller than that of said front cylindrical portion, said cylindrical member including means for supporting ballast masses and means for supporting a drive member for a wash drum of a clothes washing machine, and said cylindrical member having therein inlet and discharge apertures for a washing liquid;

a rear wall integral with said rear cylindrical portion and

closing a rear end of said cylindrical member, said rear wall including an integral hub for housing bearings for supporting a shaft of the wash drum; and

said cylindrical member having extending outwardly therefrom, at an area of juncture between said front and rear cylindrical portions, an integral annular rib having integral transversely extending stiffening elements and including seats for locking attachment to suspension members to be used for suspending an assembly of said wash tub and the wash drum.

4,423,608

WASHING APPARATUS

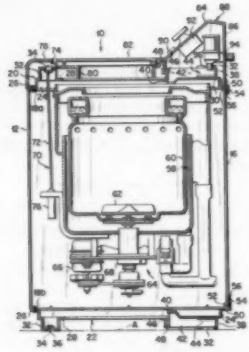
Kazuo Funaki, Kasugai, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

Filed Dec. 9, 1982, Ser. No. 448,323

Claims priority, application Japan, Dec. 30, 1981, 56-211684

Int. Cl.³ D06F *37/24*

U.S. Cl. 68—23.3 **17 Claims**



1. A washing apparatus comprising:

a casing in the form of a substantially rectangular tube open at both ends;

a water reservoir disposed in the casing;

a rotary tub disposed in the water reservoir;

an agitator disposed in the rotary tub;

driving means attached to the water reservoir and located inside the casing to drive the rotary tub and/or the agitator;

suspending means elastically suspending the water reservoir and the driving means in the casing; and

a pair of end members equal in size and shape and attached individually to both ends of the casing, each end member having a substantially rectangular ring-shaped frame attached to the peripheral edge portion at each corresponding end of the casing and protrusions formed individually in the four corners of the frame, the protrusions of one end member constituting support members supporting the suspending means, and the protrusions of the other end member constituting legs of the casing.

4,423,609

SINGLE-OPERATION TYPE OF FASTENING DEVICE FOR BOBBIN SPACER

Takeji Itoh, Kasugai, Japan, assignor to Osaka Bobbin Kabushiki Kaisha, Osaka, Japan

Filed Dec. 4, 1981, Ser. No. 327,542

Int. Cl.³ D06B *23/04*; B65H *49/20*

U.S. Cl. 68—212 **9 Claims**

9. A bobbin holder, comprising:

a spindle on which a plurality of bobbins can be coaxially mounted;

a pair of upper and lower bobbin retainers mounted on said spindle, each of said bobbin retainers having an opening therein and said spindle extends through said openings, said lower retainer being secured in a fixed position at the lower end of said spindle and said upper retainer being slidably disposed at the upper end of said spindle;

a locking rod coaxial with said spindle and secured at its lower end to the upper end of said spindle, said locking rod having an annular groove in the periphery thereof, said groove being coaxial with said locking rod;

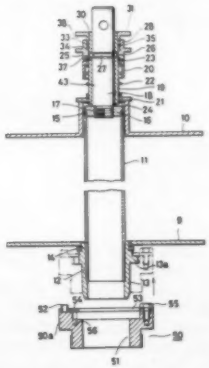
a sleeve axially slidably mounted on the outer periphery of said locking rod, said sleeve having a plurality of radially extending holes herein, said holes being alignable with said annular groove;

a plurality of locking balls disposed in said holes, the radially innermost portions of said balls being receivable in said annular groove to prevent axial movement of said sleeve relative to said locking rod;

an axially slidable ring disposed on the outer periphery of said sleeve on the lower end portion thereof;

a first stop member secured to said sleeve at a position above said slidable ring;

a first compression spring helically wound around the outer periphery of said sleeve, said first spring being interposed between said first stop member and said slidable ring, whereby said spring urges said slidable ring downwardly into sealing contact with an upper end portion of said



upper bobbin retainer, which upper end portion defines said opening in said upper bobbin retainer, whereby said upper bobbin retainer can move upwardly due to expansion of said bobbins against the action of said first spring;

an axially slidable locking member mounted on the outer periphery of said sleeve above said stop member, said locking member having a recess formed in the upper end thereof;

a second stop member secured to an upper end portion of said sleeve above said locking member; and

a second compression spring disposed in said recess in said locking member, the upper end of said second spring being in abutment with the lower end of said second stop member, the lower end of said second spring being in abutment with said locking member, whereby said locking member is urged to a downwardmost position into abutment with the upper side of said first stop member, said balls being held in said radially innermost positions thereof by contact with the inner periphery of said locking member when said locking member is in its downwardmost position, and said balls being disengageable from said annular groove by upward movement of said locking member whereby said balls move radially outwardly in said holes out of engagement with said annular groove to respective radially outermost positions, thereby releasing the assembly of said sleeve, locking member, slidable ring,

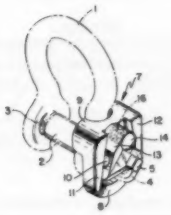
said first and second stop member, said first and second compression springs, and said balls from engagement with said locking rod.

4,423,610

SHACKLE LOCK

Judy L. Hart, and William A. Munday, both of Seattle, Wash., assignors to Gross National Products, Inc., Seattle, Wash.

Filed Jun. 22, 1981, Ser. No. 275,895
Int. Cl.³ E05B 73/00
U.S. Cl. 70—18 12 Claims



1. A device for securing a cross bolt having an eye in a shackle comprising:

a plunger insertable through the eye of the cross bolt when the cross bolt is engaged with the shackle,

spring means urging the plunger through the eye of the cross bolt,

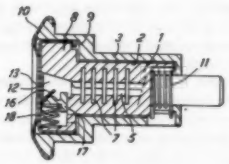
means for preventing rotation of the plunger and spring means relative to the shackle when the plunger is inserted through the eye.

4,423,611

CYLINDER LOCK FOR VEHICLES

Guy Neyret, and Alain Cadoux, both of Oullins, France, assignors to Sodex-Msgister, Societe d'Exploitation des Brevets Neiman, Croissy, France

Filed Apr. 20, 1981, Ser. No. 255,951
Claims priority, application France, Apr. 30, 1980, 80 09822
Int. Cl.³ E05B 17/18
U.S. Cl. 70—455 4 Claims



1. In a cylinder lock of the type comprising a cylinder rotatable in a bore of a body and controlled by a key sliding in a longitudinal passage of the cylinder, the entry of the key passage being closed by a flap which pivots when the key is introduced, the provision of:

(a) a slider which is movable at right angles to the key passage,

(b) a spring for returning the flap towards its closure position,

(c) a lug on said flap against which said slider presses the assembly being lodged in a front cavity of the head of the cylinder, and

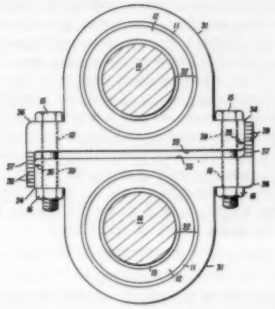
(d) a cap for closing said cavity.

4,423,612

CANTILEVERED ROLL SHAFT BEARING BRACKET

Bapa R. Uppaluri, Sharon Hill, Pa., assignor to Southwire Company, Ga.

Filed Dec. 18, 1981, Ser. No. 332,050
Int. Cl.³ B21B 31/02
U.S. Cl. 72—35 7 Claims



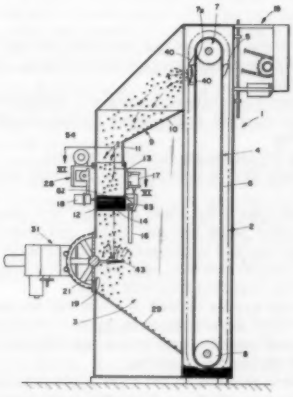
1. Apparatus for limiting deflection and bending moment of cantilevered roll shafts of a cantilevered type rolling mill comprising mutually stabilized, adjustable bearing housings wherein a first bearing housing is mounted on the cantilevered end of a first cantilevered roll shaft and secured to a second cooperating bearing housing mounted on the cantilevered end of a second cantilevered roll shaft, such that said first roll shaft is substantially parallel to said second roll shaft.

4,423,613

GRAVITY ACCELERATED SHOT TREATING APPARATUS

Bruce W. DeClark, Walker, and Joseph H. Weber, Grand Rapids, both of Mich., assignors to Progressive Blasting Systems, Inc., Grand Rapids, Mich.

Filed Sep. 10, 1981, Ser. No. 300,948
Int. Cl.³ B21J 5/00
U.S. Cl. 72—53 16 Claims



1. Apparatus for treating workpieces with gravity accelerated media comprising:

a housing having a first chamber through which the media is dropped;

a second chamber containing an elevator means for elevat-

ing said media from the lower end of said second chamber to the upper end thereof;

support means for supporting workpieces intermediate the upper and lower ends of said first chamber;

means located at the upper sections of said chambers for causing said media to pass from the upper end of said second chamber to the upper end of said first chamber and fall downwardly through said first chamber; and means at the lower sections of said chambers for causing the media to pass from said first chamber to said second chamber so it can be elevated by said elevator means to the upper sections of said chambers, the improvement comprising:

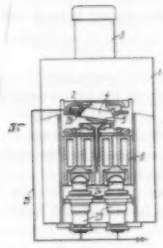
a screen located intermediate said upper end of said first chamber and the portion of said first chamber where said support means supports said workpieces, said screen being elongated and extending in a direction along the width of said first chamber; said elevator means having elongated media carriers extending along the width of said second chamber, said lengths of said carriers being substantially the same lengths as said screen for feeding media evenly along the entire length of said screen.

4,423,614

APPARATUS FOR SHAPING ARTICLES BY ROLLING

Leonid T. Krivda; Alexandr S. Pshenishnjuk, both of Kiev; Viktor I. Gromov, and Vladimir K. Schukin, both of Tolyatti, all of U.S.S.R., assignors to Kievskiy Politekhnichesky Institut of USSR, Kiev, U.S.S.R.

Filed Jul. 24, 1981, Ser. No. 286,620
Int. Cl.³ B21J *13/02*
U.S. Cl. 72—115 **4 Claims**



1. Apparatus for shaping a workpiece having an elongated rod and a flanged head into articles by rolling, comprising:

(a) a frame;

(b) means for locally deforming said workpiece said means being mounted in the upper portion of said frame and having

a drive for producing oscillating motion;

a pressing device in kinematic connection with said drive and,

a punch fixed in the lower portion of said pressing device;

(c) a cross piece mounted below said means for locally deforming said workpiece for reciprocating movement in the vertical direction, said cross piece having.

a portion extending from said frame;

a through groove defined by walls and adapted to receive the rod of the workpiece, said groove being normal to the plane of punching and connecting said extending portion with the zone of punching;

(d) a table mounted on the upper portion of said cross piece for reciprocating in a horizontal plane along said groove to move from the zone of punching, said table being provided with an opening which is coaxial with the portion of said groove within the zone of punching;

(e) means for axially loading the workpiece said means being kinematically connected with said cross piece, and disposed beyond the travel path of said table and,

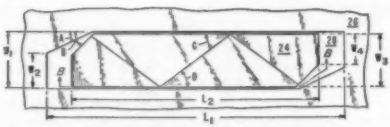
(f) a die fixed on said table and having an opening in said table.

4,423,615

METHOD AND APPARATUS FOR PRODUCING A CONNECTOR PLATE

Anthony M. Moyer, Hollywood, and Robert H. Kelly, Miramar, both of Fla., assignors to Gang-Nail Systems, Inc., Miami, Fla.

Division of Ser. No. 71,551, Aug. 30, 1979, Pat. No. 4,343,580.
This application Dec. 3, 1981, Ser. No. 327,199
Int. Cl.³ B21D *28/02, 28/14*
U.S. Cl. 72—326 **8 Claims**



1. A method for producing a connector plate made from a sheet metal plate, such connector plate having a plurality of pairs of teeth projecting from the plate with such teeth being struck from the plate by an air cutting and metal forming process, said method comprising the steps of: arranging a portion of the plate between a punch press and die with the punch press having punches cooperating with die cavities in the die and, when each punch is inserted into the die cavity, each corresponding punch and die cavity have circumferences defined by corresponding opposed longitudinal side walls and lateral end walls, each of the lateral end walls having a slanted section, where a substantial portion of the space between the slanted sections of the lateral end walls of each inserted punch within the corresponding die cavity, is less than the thickness of the sheet metal plate; breaking the metal plate by striking it with each punch; and moving each punch into the corresponding die cavity so as to cause two teeth to be struck from the sheet metal plate and leaving a slot between such teeth; forming the metal teeth by wiping the metal between the slanted sections of the lateral end walls of each punch and corresponding die cavity so as to reshape and to extrude a portion of each tooth and develop a knife edge portion of each tooth with such knife edge portion having a cross-sectional thickness which is thinner than the remaining portion of the tooth and having a sharp edge with a cross-sectional angle of between 8 and 12°, said sharp edge of each knife portion extending from said pointed tip of each of the respective said teeth along a continuous substantially arcuate path to said metal plate for facilitating penetration of each of said teeth into a member to which said connector plate is to be attached.

6. A punch press and die for punching pairs of teeth from connector plates formed of metal stock material, comprising: upper and lower relatively moveable die shoes; a punch and die with said punch being secured to one of said shoes and said die being secured to the other of said shoes for operating on the metal stock material passing through said press between said shoes; said die having a cavity for receiving said punch; said punch being aligned so as to cut through the metal stock material and to enter said cavity of said die for cutting a pair of teeth of the connector from the metal stock material with a slot between each pair of teeth; said punch and said cavity each having six side walls around the circumference thereof, including two longitudinal parallel side walls, two partial lateral side walls that are perpendicular to the respective longitudinal side walls and two slanted side walls at opposite corners of said punch and said cavity, respectively; said slanted side walls forming a pair of corresponding opposite opposing walls of said punch and said die each forming an angle between such opposing walls of less than 15°; each slanted side wall of the cavity being attached to the adjacent longitudinal side wall of

the cavity and forming an angle of between 30 and 40° with said longitudinal side wall; each slanted side wall of said punch being attached to the adjacent longitudinal side wall of the punch and forming an angle of between 40 and 50° with said longitudinal side wall; said punch having a face surface that initially contacts the metal stock material to be punched, said face surface having a primary cutting edge at its uppermost end for cutting an initial opening in the metal stock material and forming the pair of teeth, said primary cutting edge extending on a diagonal between the longitudinal side walls of the punch and forming an angle with a longitudinally extending line along each of said longitudinal side walls of between 30 and 45°.

4,423,616

METHOD OF MAKING SHEET METAL THREADED ARTICLE

James F. Pease, 7916 N. Congress Park Dr., Dayton, Ohio 45459

Division of Ser. No. 182,072, Aug. 28, 1980, Pat. No. 4,363,581. This application Sep. 20, 1982, Ser. No. 419,837

Int. Cl.³ B21D *22/00*

U.S. Cl. 72—348 **11 Claims**

1. A method of making a sheet metal threaded article comprising the steps of progressively drawing a thin sheet of metal to form a hollow sheet metal body having an elongated tubular portion projecting from an integrally connected and outwardly projecting base portion defining an opening, crimping a section of said tubular portion to form helical threads and a corrugated wall configuration in axial cross-section, forming within said section at least one axially extending folded sheet metal rib having a double wall thickness, and arranging said helical threads for receiving a threaded member.

4,423,617

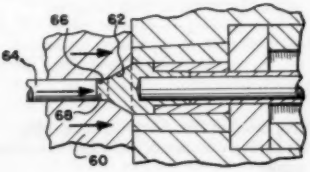
METHOD OF MAKING A MALE RESISTANCE WELDING ELECTRODE

Russell A. Nippert, Delaware, Ohio, assignor to The Nippert Company, Delaware, Ohio

Filed Feb. 22, 1982, Ser. No. 351,056

Int. Cl.³ B21D *22/00*

U.S. Cl. 72—356 **9 Claims**



1. A method of making a male resistance welding electrode of a dispersion strengthened copper material, said electrode having a head portion at a first end thereof of a generally truncated conical shape and a truncated conical shank portion at the second end thereof, said shank portion defining a cylindrical recess therein and having an outer diameter which gradually reduces to a first diameter toward said second end, said shank portion being of a second diameter and said head portion being of a third diameter at the point where said head portion and said shank portion meet, said second diameter being less than said third diameter and greater than said first diameter, comprising the steps of:

placing a cylindrical cut-off billet of dispersion strengthened copper material in a first cylindrical die cavity of a first die, said first die cavity being open at one end thereof and having an inner diameter substantially equal to said second diameter, said first die including a cylindrical pin located axially within said first die cavity and extending thereinto from the end opposite said open end of said first die cavity, said pin having an outer diameter substantially equal to the inner diameter of said recess,

applying pressure to said cut-off billet adjacent said open end of said first die cavity to cause forward extrusion of said billet over said pin, whereby a preform billet is produced of an outer diameter substantially equal to said second diameter and having said cylindrical recess formed in one end thereof,

placing said preform billet in a second die cavity of a second die, said second die cavity being open at one end, said second die including a cylindrical pin of an outer diameter substantially equal to the inner diameter of said cylindrical recess, located axially within said second die cavity and extending thereinto from the end opposite said open end of said second die cavity, said second die cavity including a truncated conical cavity region around said cylindrical pin adjacent the end opposite said open end of said second die cavity, said truncated conical cavity region having an inner diameter adjacent said end opposite said open end of said second die cavity substantially equal to said first diameter and an inner diameter at the opposite end of said truncated conical cavity region substantially equal to said second diameter, said second die cavity further including a substantially cylindrical cavity region around said cylindrical pin adjacent the open end of said second die cavity, said substantially cylindrical cavity region having an inner diameter substantially equal to said third diameter, said preform billet being placed in said second die cavity such that said cylindrical recess thereof receives said cylindrical pin,

applying pressure with a first forming member to the end of said preform billet opposite said cylindrical recess to force the end of said preform billet surrounding said cylindrical recess into said truncated conical cavity region, thereby forming said shank portion of said electrode, while upsetting the end of said preform billet opposite said cylindrical recess to a diameter substantially equal to said third diameter, thereby working said end of said preform billet opposite said recess to produce a nonfibrous grain structure by substantially increasing the diameter thereof to form a semi-finished workpiece, and

while said semi-finished workpiece remains in said second die cavity, applying pressure to the end of said semi-finished workpiece adjacent said open end of said second die cavity with a second forming member defining a recess of a generally truncated conical shape to form said truncated conical head shape of said electrode, thereby producing said resistance welding electrode.

4,423,618

REHARDENING OF COPPER CONNECTORS

John P. Clarke, DeSoto, Tex., assignor to Virginia Chemicals Inc., Portsmouth, Va.

Filed Sep. 14, 1981, Ser. No. 302,098

Int. Cl.³ B21D *41/02*

U.S. Cl. 72—370 **7 Claims**

1. A method for enabling a process component of heat-exchanging, air-conditioning, and refrigerating circuits to be joined to fluid conduit tubing of said circuits by field brazing, using phosphorus-bearing copper filler metal with little or no

silver content to make the brazed joints, by imparting a protective amount of hardness to exposed ends of fully annealed small sections of copper tubing which have a roundness and diameter needed for said brazed joints and are used as connectors, each said connector having one end joined to a dissimilar metal of said process component by furnace brazing so that said copper tubing has been fully annealed, at an elevated temperature that is significantly higher than optimum annealing temperatures, to a hardness of 2–10 F Scale Rockwell, said method comprising the following steps:

A. selecting said tubing with a diameter which is smaller than the field brazing diameter needed for making said brazed joints; and

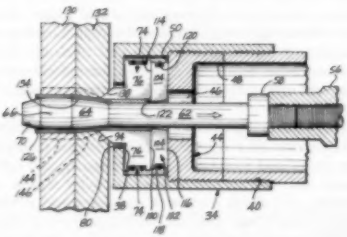
B. mechanically expanding said exposed ends of said tubing from two percent to twenty percent in diameter to said field brazing diameter, whereby said tubing is work-hardened to a hardness of 45–50 F Scale Rockwell, whereby said tubing is resistant to damage during shipping and handling before said field brazing is performed and is able to retain the critical tolerances needed for said field brazing.

4,423,619

APPARATUS AND METHOD FOR PRESTRESSING A COUNTERSUNK FASTENER HOLE

Louis A. Champoux, Seattle, Wash., assignor to Fatigue Technology, Inc., Seattle, Wash.

Filed Jun. 15, 1981, Ser. No. 273,725
Int. Cl.³ B21D *39/08*; B23P *11/02*
U.S. Cl. 72—393 **34 Claims**



1. In a pull gun of a type which is used for pulling a mandrel through a split prestressing sleeve located within a fastener hole, so that an increasing diameter portion and an adjacent maximum diameter portion of the mandrel can exert expansion forces on the sleeve, to cause the sleeve to be expanded in the radial direction and prestressing the metal around the fastener hole, to in that manner improve fatigue properties of the metal, the improvement comprising:

an axially split, segmented expandable ring member having a central passageway through which the mandrel travels as it is being retracted into the pull gun;

said passageway being normally smaller in diameter than the maximum diameter of the mandrel and a substantial part of the increasing diameter portion of the mandrel, so that as the mandrel moves through such passageway it enlarges the passageway by forcing the segments of the ring member apart; and

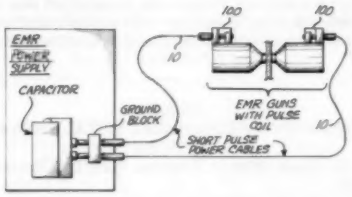
said ring member segments including means to engage a countersunk portion of said hole to prestress metal forming the same when said segments are forced apart in response to axial movement of the mandrel through said expandable ring member.

4,423,620

CABLE FOR ELECTRICAL POWER TRANSMISSION

Franciscus Hogenhout, Redmond; Arthur W. McDermott, Maple Valley, and Joseph L. Rumney, Seattle, all of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Jun. 1, 1981, Ser. No. 268,929
Int. Cl.³ B21J *15/24*; H01B *9/00*
U.S. Cl. 72—430 **7 Claims**



1. A high voltage short pulse power transmission cable assembly comprising:

an inner conductor;

a pair of tubular-shaped outer conductors concentrically disposed in electrically insulative relationship about said inner conductor;

said inner conductor having a cross-sectional area in circular mils substantially equal to the cross-sectional area of said tubular-shaped outer conductors combined; and,

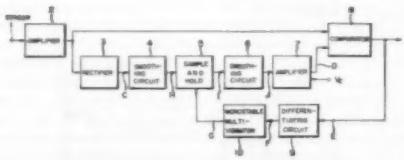
wherein said pair of tubular-shaped outer conductors comprises a pair of concentrically disposed tubular braid members.

4,423,621

KNOCKING DETECTOR

Yoshida Kenichi, Yokosuka, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Oct. 9, 1980, Ser. No. 195,628
Claims priority, application Japan, Oct. 11, 1979, 54-131224; Nov. 16, 1979, 54-148456; Mar. 26, 1980, 55-38721
Int. Cl.³ G01L *23/22*
U.S. Cl. 73—35 **12 Claims**



1. A knocking detector for an engine, comprising:

(a) means for sensing vibration of the engine as an alternating current signal;

(b) means for rectifying the output of said sensing means;

(c) means for smoothing the output of said rectifying means;

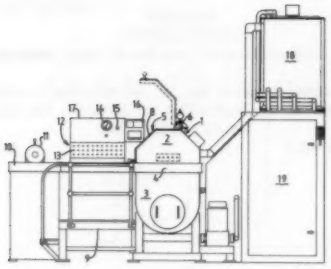
(d) means for comparing the output of said smoothing means with the output of said sensing means; and

(e) means responsive to the output of said comparing means for cutting off supply of the rectified signal to said smoothing means during knocking.

4,423,622
PIPE PRESSURE TESTING AND CLEANING APPARATUS

John M. Bartlett, Weston-on-the-Green, England, assignor to Elan Pressure Clean Limited, Coventry, England

PCT No. PCT/GB81/00053, § 371 Date Nov. 20, 1981, § 102(e) Date Nov. 20, 1981, PCT Pub. No. WO81/02787, PCT Pub. Date Oct. 1, 1981
PCT Filed Mar. 23, 1981, Ser. No. 325,425
Claims priority, application United Kingdom, Mar. 22, 1980, 8009768
Int. Cl.³ G01M *3/28*
U.S. Cl. 73—49.5 14 Claims



1. A method of pressure testing and cleaning a pipe, having first and second ends, at a single station comprising the steps of:
(a) providing a treatment manifold having at least one pipe receiving location;
(b) positioning the first end of the pipe on the treatment manifold at said at least one pipe receiving location;
(c) providing closure means at the second end of the pipe to seal off said second end of the pipe;
(d) supplying fluid to the pipe through the treatment manifold;
(e) pressuring the pipe to a required desired value;
(f) sensing the pressure level within the pipe so as to register a pressure drop indicative of pipe failure;
(g) releasing pressure within the pipe;
(h) removing said closure means from the said second end of the pipe; and
(i) washing the pipe with water at high pressure above 500 psi supplied through the treatment manifold.

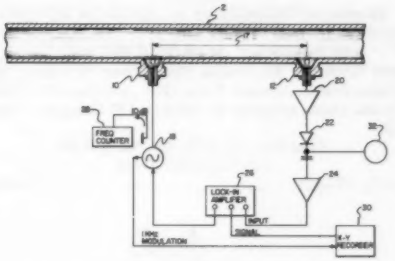
4,423,623
MICROWAVE METER FOR FLUID MIXTURES

William W. Ho; Alan B. Harker; Ira B. Goldberg, and Kwang E. Chung, all of Thousand Oaks, Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Aug. 24, 1981, Ser. No. 295,904
Int. Cl.³ G01N *22/00;* G01F *1/70*
U.S. Cl. 73—61 R 11 Claims

4. A method of measuring an ingredient in a mixture of ingredients, comprising the steps of:
providing a waveguide for propagating microwaves and for containing said mixture;
determining a relationship between the quantity of said ingredients in said mixture and a frequency characteristic of said mixture in said waveguide by:
placing samples of said mixture having known quantities of said ingredients in said waveguide;
propagating microwaves in said waveguide;
varying the frequency of said microwaves;
detecting said microwaves after they have propagated in said waveguide; and
determining a frequency characteristic of said waveguide with each of said samples; placing said mixture to be measured in said waveguide;
propagating microwaves in said waveguide containing said mixture to be measured;
varying the frequency of said microwaves;
detecting said microwaves after they have propagated in said waveguide;
determining a frequency characteristic of said waveguide with said mixture to be measured contained therein; and
comparing said frequency characteristic of said mixture with said relationship, whereby the quantity of said ingredient in said mixture is measured.

8. A method of measuring the flow rate of a heterogeneous mixture of ingredients, comprising the steps of:
providing a waveguide through which the mixture to be measured can flow;
propagating microwaves in a first section of said waveguide while said mixture is flowing in said waveguide;



detecting said microwaves after they have propagated in said first section of said waveguide;
determining a time dependent characteristic frequency of said first section of said waveguide containing said mixture;
propagating microwaves in a second section of said waveguide while said mixture is flowing in said waveguide, said second section being located a predetermined distance from said first section;
detecting said microwaves after they have propagated in said second section of said waveguide;
determining a time dependent characteristic frequency of said second section of said waveguide containing said mixture;
cross correlating the time dependent characteristic frequencies obtained for said first and said second sections of said waveguide, whereby the flow rate of said mixture is measured.

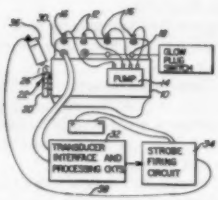
4,423,624
DIESEL TIMING LIGHT

Daniel Dooley, Burr Ridge; Joseph Dooley, Chicago, both of Ill., assignors to Creative Tool Company, Burr Ridge, Ill.

Filed Feb. 24, 1982, Ser. No. 351,662
Int. Cl.³ G01M *15/00*
U.S. Cl. 73—119 A 4 Claims

1. Apparatus for monitoring the timing of combustion within the cylinder of a diesel engine having a glow plug aperture comprising:
a transducer adaptable to said glow plug aperture for developing a signal that varies with pressure changes within said cylinder which include a primary pressure rise occurring at the point of combustion;
circuit means for receiving said transducer output signal and for developing a timing pulse in response to the variation of said signal resulting from said combustion pressure rise,

while being non-responsive to all other variations of said transducer signal;



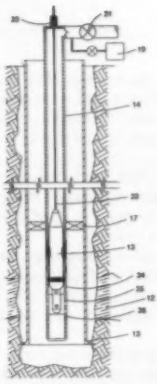
a high intensity strobe light for providing a flash of illumination upon occurrence of said timing pulse to provide a visual indication of combustion timing.

4,423,625

PRESSURE TRANSIENT METHOD OF RAPIDLY DETERMINING PERMEABILITY, THICKNESS AND SKIN EFFECT IN PRODUCING WELLS

James N. Bostic, III, Dallas, Tex.; Robert D. Carter, Tulsa, Okla.; Ram G. Agarwal, Tulsa, Okla., and Ronald F. Crowell, Jenks, Okla., assignors to Standard Oil Company, Chicago, Ill.

Filed Nov. 27, 1981, Ser. No. 325,804
Int. Cl.³ E21B *47/10*
U.S. Cl. 73—155 **11 Claims**



1. A method of flow testing a producing low-permeability gas-formation through a well comprising:
(a) placing an instrument adjacent the formation;
(b) placing test chamber apparatus in the well;
(c) sealing the space between said test chamber apparatus and the well and measuring the pressure and temperature within the well with said instrument;
(d) allowing formation fluids to enter said test chamber apparatus; and
(e) measuring the pressure and temperature within the well as a function of time by said instrument as the pressure within said test chamber apparatus increases.

4,423,626

METHOD OF DETERMINING WIND DIRECTION FOR HUNTERS

Dean Herschede, 8560 Donna La., Cincinnati, Ohio 45236

Filed Mar. 27, 1981, Ser. No. 248,312
Int. Cl.³ G01W *1/00*
U.S. Cl. 73—188 **6 Claims**

1. A method for avoiding detection by game animals by scent of a hunter through establishing wind direction to insure that the hunter is positioned downwind from the animal, comprising the steps of providing a quantity of finely divided powder-like hydrophobic material undetectable by smell by the animal; furnishing said material with a natural masking scent having an odor chosen from the group consisting of acorn, pine, apple or cedar, said scent being identifiable by the animal and serving to mask the scent of the hunter; dispersing into the air in a relatively small cloud at a location removed from the animal a quantity of said material; and observing the direction of travel in the air of said cloud of material to establish wind direction.

4,423,627

FLOW METER

Watson V. Cavileer, Fullerton, and Don B. Locy, Anaheim, both of Calif.

Continuation-in-part of Ser. No. 187,605, Sep. 15, 1980, abandoned. This application Oct. 13, 1981, Ser. No. 310,634
Int. Cl.³ G01F *1/20*
U.S. Cl. 73—215 **8 Claims**

1. A flow meter for measuring the volume of fluid flow comprising
fluid passageway means connectable to a fluid transmitting member,
a plurality of scales of indicia on said fluid passageway means for indicating different ranges of fluid flow rates,
said fluid passageway means defining an orifice opening for each of said scales, each of said orifice openings having a predetermined area correlated with said indicia of the one of said scales therefor causing said indicia to indicate the quantity of fluid flow in said fluid transmitting member in accordance with the level of fluid in said fluid passageway means,
means for selectively opening each of said orifice openings for allowing fluid in said fluid passage means to discharge therefrom while closing the remaining ones of said orifice openings for causing the indicia of the corresponding one of said scales to so indicate fluid flow,
said fluid passageway means including:
a tube having a light transmissive wall to permit the level of fluid therein to be seen through said wall,
said orifice openings being adjacent one end of said tube, and a sleeve having a portion telescoped with respect to said tube and rotatable relative thereto,
said sleeve having an opening through the wall thereof at least as large as the largest of said orifice openings, whereby at selected rotational positions of said tube relative to said sleeve a selected one of said orifice openings is in registry with said opening in said sleeve so that fluid received in said sleeve can discharge

through said opening in said sleeve and one of said orifice openings and can rise in said tube for indicating fluid flow rate.

4,423,628

METHOD AND APPARATUS FOR MONITORING THE LENGTH OF A LIQUID COLUMN

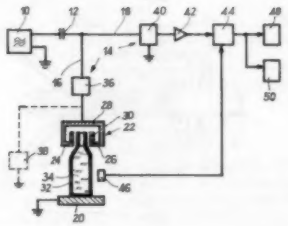
Olaf A. Richter, Neuer Weg 30 A, D-3504 Kaufungen, Fed. Rep. of Germany

Filed Nov. 2, 1981, Ser. No. 317,557

Claims priority, application Fed. Rep. of Germany, Jul. 18, 1981, 3128507

Int. Cl.³ G01F *23/28*

U.S. Cl. 73—290 R **33 Claims**



11. An apparatus for monitoring the length of a liquid column, such as the filling height of a beverage bottle, said apparatus comprising a high frequency electrical signal generator parallel circuit connected to the output of said generator, said parallel circuit including a first branch including electrodes for electrically connecting the ends of the column to be monitored to said branch thereby coupling the liquid column to the generator which is of a frequency such that electrical resonance is produced in the first branch, and a second branch including means for detecting in said second branch an electrical parameter associated with the electrical signal produced by said generator and thereby providing a measure of the length of the liquid column being monitored.

4,423,629

METHOD AND APPARATUS FOR SENSING LIQUID LEVEL

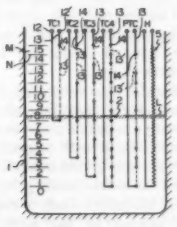
Katsuyuki Ara; Naoaki Wakayama, both of Ibaraki; Kazuo Kobayashi, Hitachi, and Toshihiko Ogasawara, Ibaraki, all of Japan, assignors to Japan Atomic Energy Research Institute, Tokyo and Sukekawa Electric Co., Ltd., Ibaraki, both of, Japan

Filed Oct. 5, 1981, Ser. No. 308,903

Claims priority, application Japan, Oct. 7, 1980, 55-140289

Int. Cl.³ G01F *23/22*

U.S. Cl. 73—295 **3 Claims**



2. A liquid level sensing apparatus characterized in that a metal pipe to be charged vertically into a liquid to be sensed is provided therein vertically with a heating element heated by a power source and a desired plurality of thermocouple elements which are provided by said heating element with a vertically uniform temperature condition and are capable of sensing external temperature, said thermocouple elements are formed by connecting two kinds of thermocouple wires alternately in series by thermometric contacts and leading out a pair of terminals on cold contact side to outside, said thermometric contacts of the thermocouple elements are disposed on dividing lines of sensing sections formed by dividing a desired liquid level sensing range into a desired number of sections, which are provided in numbers ranging from the highest which is equal to the number of the dividing lines to the lowest which is one or two, are provided with differences in phase from one another, and the terminals on cold contact side of the thermocouple elements, when said thermocouple elements sensed a temperature gradient by the difference in heat transfer rate of the liquid to be sensed in the phase above and below the liquid level, changed the electromotive forces generated thereby in the thermocouple elements into binary signals of "0" and "1" and connect them to a thermocouple signal processing and liquid level deciding circuit which decides in which sensing section said liquid level exists by permutation of said binary signals.

4,423,630

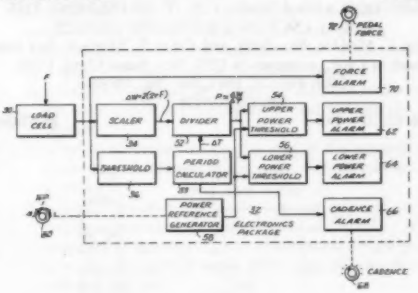
CYCLIC POWER MONITOR

Thomas R. Morrison, 137 Overlook St., Mount Vernon, N.Y. 10552

Filed Jun. 19, 1981, Ser. No. 275,334

Int. Cl.³ G01L *5/02*

U.S. Cl. 73—379 **7 Claims**



1. Apparatus for measuring athletic performance of a bicycle rider comprising:

means for sensing a force on a pedal of a bicycle effective to produce a force signal related to a force applied to said pedal by said bicycle rider;

means responsive to said force signal for detecting a predetermined event in each rotation of a pedal crank of said bicycle and for producing an output signal in response;

means responsive to said output signal for calculating a period between said events; and

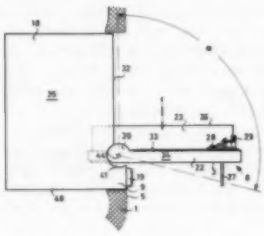
means responsive at least to said period for calculating at least one parameter of said athletic performance.

4,423,631

CONSTRUCTION OF A HOUSING, PARTICULARLY FOR TACHOGRAPHS, AND OF A COVER PIVOTALLY ARRANGED ON THE HOUSING

Berthold Dold, Schramberg, Fed. Rep. of Germany, assignor to Kienzle Apparate GmbH, Villingen, Fed. Rep. of Germany

Filed Nov. 25, 1981, Ser. No. 324,809
Claims priority, application Fed. Rep. of Germany, Dec. 6, 1980, 3046118
Int. Cl.³ G01D 11/24
U.S. Cl. 73—431 4 Claims



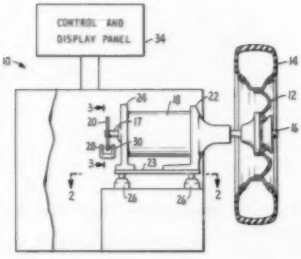
1. Construction of a housing, particularly for tachographs, and of a cover which is pivotally arranged at said housing, at the front of said cover a window is provided which makes possible at least the observation of different indicating means arranged in said cover, characterized in that said cover **8** is connected with said housing **18** in two separate bearings **24**, **25** in such a way that during opening of said cover a part thereof recedes into said housing, and that at said housing **18** at least one extension **9** which is assigned to the receding part of said cover **8** and has a frontal area **4** which lies essentially in the plane of the frontal area **3** of said cover, and at least one edge **47** which is independent from the cover and is formed by intersection of said area **4** with the adjoining housing wall **48**.

4,423,632

METHOD AND APPARATUS TO DETERMINE THE IMBALANCE IN A ROTATING OBJECT

Allen C. Madden, Woodside, and Albert L. Mitchell, San Jose, both of Calif., assignors to QYL Inc., Santa Clara, Calif.

Filed Feb. 25, 1981, Ser. No. 238,091
Int. Cl.³ G01M 1/22
U.S. Cl. 73—462 26 Claims



1. An apparatus to determine the imbalance in a rotating wheel said apparatus comprising:

a solid shaft means for supporting said wheel;

an eight pole asynchronous induction motor drive means directly connected to said shaft means, for acclerating said wheel to a predetermined speed;

means for removing power to said drive means; and

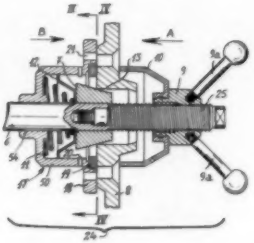
force transducer means for continuously measuring the magniture of the imbalance of the wheel as the velocity of the wheel decreases.

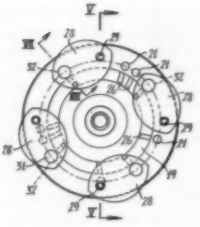
4,423,633

NOSE UNIT FOR A VEHICLE-WHEEL BALANCING MACHINE

Paul A. Coetsier, Chelles, France, assignor to Etablissements M. Muller & Cie., Paris, France

Filed Dec. 29, 1981, Ser. No. 335,569
Claims priority, application France, Jan. 9, 1981, 81 00270
Int. Cl.³ G01M 1/06
U.S. Cl. 73—487 6 Claims





1. A vehicle-wheel-balancing-machine nose unit comprising means for balancing any of a plurality of different types of vehicle wheels, wherein said balancing means comprise in combination:

(a) a hollow body of revolution attached coaxially to a spindle and having an external annular flange designed to serve as a support for the abutting application of a vehicle-wheel rim when the wheel is mounted by means of a centering cone in coaxial relation to said spindle; a cup housed within the hollow body in coaxial relation to the spindle and urged towards the central opening of the hollow body by a resilient member applied against the end-wall of said hollow body, said cup being adapted to exert a thrust on the cone when said cone is engaged within the rim on the rear side thereof, the direction of said thrust being opposite to the direction of the thrust exerted by an external device for clamping said rim against said hollow body;

(b) and a disk fitted for free rotational displacement within an annular recess in the front face of the annular flange and provided with a series of grooves which are inclined at a predetermined angle with respect to the radii of the disk and which are positioned in such a manner as to be located opposite to corresponding holes formed in the annular flange of the hollow body in respect of a predetermined angular position of said disk, this arrangement being such that a series of crank-plates provided with studs for securing the vehcle-wheel rim can be pivotally mounted on said annular flange when the vehicle wheel to be balanced is to be mounted by means of the wheel-rim

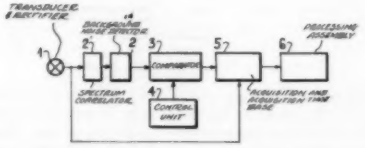
holes through which the crank-plate studs are accordingly passed, said studs being equal in number to the holes of said rim.

4,423,634

DEVICE FOR THE ACTIVATION OF AN APPARATUS FOR MEASURING ACOUSTIC EMISSION BY DETECTION OF BACKGROUND NOISE

Bernard Audenard, and Jean Marini, both of Paris, France, assignors to CGR, Paris, France

Filed Jul. 6, 1981, Ser. No. 280,355
Claims priority, application France, Jul. 8, 1980, 80 15157
Int. Cl.³ G01N 29/00; G01H 1/00; G01D 7/00
U.S. Cl. 73—587 5 Claims



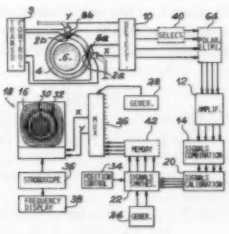
1. A device for measuring acoustic emission, wherein said device comprises a detection circuit for detecting the background noise collected by transducers of the measuring apparatus; means for comparing the signal generated by said detection circuit with a reference voltage and producing an output signal when the comparison indicates that the background noise level has increased above a certain threshold level; and means for acquiring data at a first frequency, f, when no output signal is produced and when said output signal is produced acquiring data at a second frequency, F, greater than said first frequency, f.

4,423,635

SYSTEM OF ANALYSIS BY VISUAL DISPLAY OF THE VIBRATORY MOVEMENTS OF A ROTARY MACHINE

Jacques-Marie Senicourt, Villemonble, and Jean-Louis Tebec, Gif sur Yvette, both of France, assignors to Societe Nationale elf Aquataine, France

Filed May 19, 1982, Ser. No. 379,984
Claims priority, application France, May 21, 1981, 81 10135
Int. Cl.³ G01H 1/00; G01M 13/00
U.S. Cl. 73—593 22 Claims



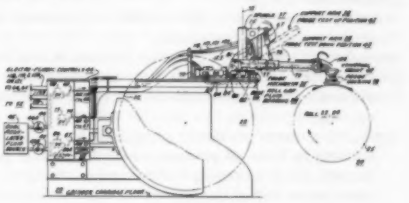
1. A system of analysis by visual display of the vibratory movements of a rotary machine comprising at least one shaft supported by at least one bearing, wherein said system comprises for each bearing and that part of the shaft supported by the bearing, two first transducers able in each case to transmit electrical signals as a function of the relative displacements of the shaft relative to the bearing, said two first transducers being located in the bearing facing the shaft in such a way that they form a given angle between the transducers; two second transducers each able to transmit electrical signals which are a function of the absolute displacements of the bearing, said two second transducers being positioned level with the bearing so that they form a given angle between the transducers; control means for controlling the first and second transducers; detection means for detecting electrical signals from the two first and two second transducers; means for combining the electrical signals from the detection means for determining the absolute movements of the shaft; and wherein said system comprises display means; means for simultaneously producing on the said display means two groups of animated or moving circles, the movements of the circles of the first group representing the displacements of the shafts in the bearings and the movements of the circles of the second group representing the displacements of the bearings; and means for positioning the two groups of moving circles on the display means so as to represent the image of the machine.

4,423,636

ARTICULATED TEST PROBE MECHANISM WITH FLUID BEARING IN TEST ROLL GAP

Arcade J. Plante, Center Valley, Pa., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed Dec. 8, 1981, Ser. No. 328,772
Int. Cl.³ G01N 29/04
U.S. Cl. 73—622 3 Claims



1. A nondestructive probe mechanism for testing roll surface conditions of a rolling mill roll rotatable in a test fixture and operable with a grinder carriage moveable substantially parallel to and lengthwise of the test roll longitudinal axis, said probe mechanism comprising:

(a) articulated probe structure means mountable on the grinder carriage, said structure means comprising:
1. a carriage-mounted base member with upright support,
2. a spindle rotatable about the upright support,
3. a moveable support arm pivotally attached to the spindle with a free end positionable over at least the test surface,
4. a universal mount on the free end of the support arm providing attachment means with at least one axis of movement,
5. a nondestructive test probe housing attached to the universal mount attachment means and wherein a probe sensor of either eddy current or ultrasonic design generates an anomoly test signal when aligned with the test roll surface, and
6. said probe housing being modified to include pressurized fluid bearing means capable of maintaining a probe housing-to-test roll gap;

(b) means for automatically positioning the test probe housing including:
1. first and second fluid pressure responsive means cooperating with the spindle and the support arm to position the probe housing in a safe retracted position related away from the test roll, a probe test up position and a probe test down position over the test roll surface, all in response to corresponding position control signals,
2. a first pressurized fluid source adjusted to maintain a constant fluid bearing roll gap, and
3. a second pressurized fluid source for said fluid pressure responsive means;

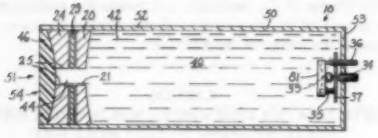
(c) control means for producing the corresponding position control signals in response initially to a command.

4,423,637

ULTRASONIC TESTING INSTRUMENT AND METHOD

Mahlon R. Soloway, 202 Sunrise Hill Rd., Norwalk, Conn. 06851

Filed Dec. 18, 1980, Ser. No. 217,778
Int. Cl.³ G01N 29/04
U.S. Cl. 73—642 28 Claims



1. An ultrasonic instrument for use in the non-destructive and non-invasive testing of an object comprising:

transmitter means for generating a converging beam of ultrasonic energy;

housing means enclosing said transmitter means and having an exit opening for said beam;

a medium of low sound attenuation disposed in said housing means, said medium defining the path for the beam of ultrasonic energy from said transmitter means to said exit opening;

collimating means positioned beyond the focal point of the converging beam to produce a collimated beam passing through said exit opening which remains collimated as the beam passes out of the instrument and into materials of different acoustic indices of refraction; and

receiver means separate from the transmitter means and responsive to ultrasonic energy returned from an object to be tested by reflection of said collimated beam at boundaries between regions of different ultrasonic transmission characteristics within said object, said receiver means providing an output signal responsive and indicative of said returned energy.

4,423,638

CAPACITIVE SYSTEM FOR MANOMETRIC DETECTION AND MEASUREMENT OF DIFFERENTIAL PRESSURES

Emanuel Tward, Northridge, Calif., assignor to Tward 2001 Limited, Los Angeles, Calif.

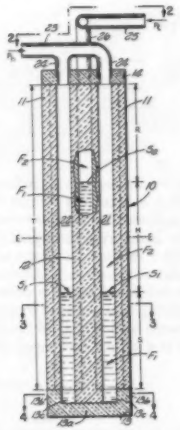
Filed Jun. 1, 1982, Ser. No. 383,791
Int. Cl.³ G01L 9/12
U.S. Cl. 73—749 15 Claims

1. A manometric method for measuring differential pressures by comparing the dielectric properties of a strata of fluids in a first manometric column with the dielectric properties of a strata of fluids in a second manometric column which comprises:

(a) providing a multi-capacitor manometric fluid sensor formed of a first pair of capacitors having like dielectric spaces within which a first strata of fluids is maintained as a column under a first pressure force as the dielectric material filling said spaces and a second pair of capacitors having like dielectric space within which a second strata of fluids is maintained as a column under a second pressure force as the dielectric material filling said spaces, the dielectric spaces of said first pair of capacitors and the dielectric spaces of said second pair of capacitors being in fluid flow communications with one another at their lower ends whereby said first strata of fluids and said second strata to fluids assume equilibrium positions within their respective dielectric spaces in relation to the densities of said fluids and the respective pressure forces applied to the columns thereof;

(b) connecting the first and second pairs of capacitors of said sensor together to form the four capacitive sides of a Wheatstone bridge circuit, the first pair of capacitors connected as two opposing sides of said bridge and the second pair of capacitors connected as the remaining two opposing sides of said bridge;

(c) applying a source of alternating current of constant voltage and set frequency across said bridge circuit to a first set of bridge terminals at opposite corners of the bridge, each of said first terminals located between a capacitor of the first pair of capacitors and a capacitor of the second pair of capacitors of said sensor;



(d) interrogating the bridge circuit through a detection circuit connected across said bridge to a second set of bridge terminals independent of said first set of terminals and at opposite corners of the bridge, each of said second terminals located between a capacitor of the first pair of capacitors and a capacitor of the second pair of capacitors of said sensor; and

(e) measuring the current value in said detection circuit and indicating said value as a deviation value of capacitance value of the first column of fluids under said first pressure force with respect to the capacitance value of the second column of fluids under said second pressure force in direct linear relationship with said current value.

4,423,639

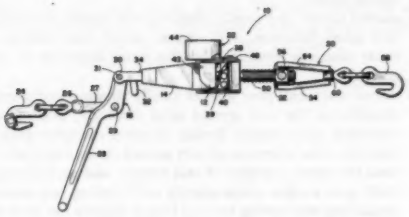
APPARATUS FOR ADJUSTING AND INDICATING THE TENSION IN A GUY LINE

Lanny V. Grade, Oklahoma City, and Stuart E. Corry, Hallett, both of Okla., assignors to The Geolograph Company, Oklahoma City, Okla.

Filed Nov. 23, 1981, Ser. No. 324,101
Int. Cl.³ G01L 5/04
U.S. Cl. 73—862.42 4 Claims

1. A tension indicator device used in conjunction with a guy line system of an inclined oilwell derrick, comprising a hydraulic compression load cell, a pair of interlocking U-shaped yokes housing said load cell, each yoke having an outer end and an inner base portion, a pressure generating plunger connected to said load cell and positioned against the base portion of the U of one interlocking yoke of said pair of interlocking yokes while said load cell is positioned against the base portion of the U of the other of said interlocking yokes of said pair of interlocking yokes, whereby, when a tension force is applied to the ends of said yokes, a compression force will be applied to said load cell and said plunger through said base portions of said

yokes, an initial tensioning means mounted on one of said outer ends and providing an initial tension load to said guy line system, a fine adjustment means affixed to the other of said outer ends and providing a finer adjustment of the tension provided by said initial tensioning means, a plurality of attachment means rotatably mounted on the ends of said tension



indicator device providing a means to insert said tension indicator device between a set of intermediate chains of said guy line system, and a calibrated pressure gauge directly attached to said load cell; and whereby said interlocking yokes transfer a linear tension load into a compression force in said load cell by means of said plunger and wherein said compression force is transmitted as a pressure signal to said pressure gauge.

4,423,640

ELECTROMECHANICAL BENDING FORCE RECEIVER, IN PARTICULAR FOR WEIGHING CELLS

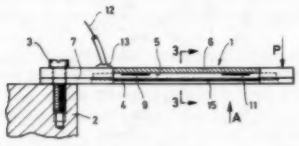
Hans Jetter, Balingen, Fed. Rep. of Germany, assignor to Bizerba-Werke, Wilhelm Kraut GmbH & Co. KG, Balingen, Fed. Rep. of Germany

Filed Oct. 29, 1981, Ser. No. 316,330

Claims priority, application Fed. Rep. of Germany, Nov. 15, 1980, 3043139

Int. Cl.³ G01L *1/22*

U.S. Cl. 73—862.65 **9 Claims**



1. An electromechanical bending force receiver for weighing cells and the like comprising a bending body capable of being loaded with a force to be measured, at least one electromechanical transducer in the form of a strain gauge disposed on said bending body and a covering foil protecting the strain gauge against environmental influences, wherein said bending body has a notch-like recess, said strain gauge is disposed in said recess, said recess is surrounded by a plane step surface located adjacent to that zone of the bending body which is neutral with respect to bending and said covering foil is arranged in said neutral zone of said bending body and is hermetically bonded to said step surface.

4,423,641

SAMPLING VALVE FOR DRAWING SAMPLES FROM TANKS CONTAINING EASILY CONTAMINATED LIQUIDS

Kaj Ottung, Askebyvej 8, DK-2830 Virum, Denmark

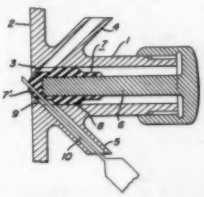
Filed Oct. 13, 1981, Ser. No. 310,877

Claims priority, application Denmark, Oct. 13, 1980, 4327/80

Int. Cl.³ G01N *1/10*

U.S. Cl. 73—863.86 **1 Claim**

1. A sampling valve for drawing sterile samples, from vessels containing liquids that are easily contaminated, comprising, a valve housing with a side to be flushly attached to one of said vessels, said side containing a conical valve seat, said housing defining a bore aligned with said valve seat, a valve unit in said bore having a spindle with a resilient body at one end thereof cooperable with said valve seat, said resilient body having a first part in sealing engagement with said bore and a second part of lesser diameter cooperable with said valve seat, a section of said housing including two externally accessible passages which are inclined relative to said bore and have axes



which intersect at the center of said valve seat, said valve body second part being the part that closes said valve seat, said first part of said valve body and parts of said section which connect said two passages cooperating when said valve seat is closed to form an annular passage interconnecting said two externally accessible passages, said valve body second part being piercable, when said valve seat is closed, by a hypodermic needle first extending through either of said two externally accessible passages and thereafter through said annular passage.

4,423,642

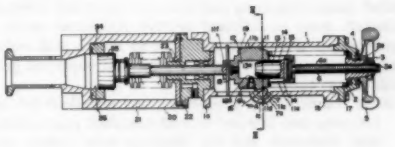
ACTUATOR

Koichi Kuboichi, Kawasaki, Japan, assignor to Eagle Industry Co., Ltd., Tokyo, Japan

Filed Mar. 2, 1981, Ser. No. 239,282

Int. Cl.³ G05G *17/00*; F16K *31/50, 31/56*

U.S. Cl. 74—2 **9 Claims**

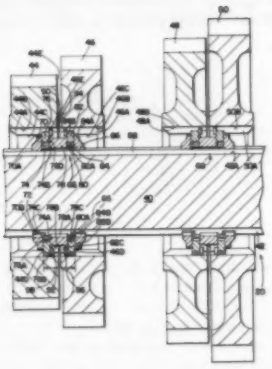


1. An actuator comprising a cylinder, a stem means mounted for axial movement on said cylinder, a piston slidable in said cylinder, said piston having an internal longitudinal opening, said stem means comprising a stem shaft and a stem end part, said stem end part being slidable in said internal opening in said piston, connecting means slidably connecting said stem means to said piston to provide for free independent movement of said piston relative to said stem means and to provide simultaneous movement of said piston and said stem means, a valve element connected to said piston for opening and closing a valve, biasing means in said cylinder biasing said piston in a first direction in which said valve element closes said valve, and holding-release means having a holding element operable to engage said piston to hold said piston in a first position in which said valve is open, said holding element being mounted and retained on said cylinder as said piston moves in said cylinder, said holding-release means further comprising a release element engageable by said stem end part to release said holding element such that upon such release, said biasing means resiliently drives said piston and said valve element to close said valve.

4,423,643
GEAR RETAINER

Thomas V. McNamara, Kalamazoo, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Mar. 24, 1982, Ser. No. 361,283
Int. Cl.³ F16H *3/08, 57/00*
U.S. Cl. 74—331 7 Claims



1. Improved gear retainer means for a change gear transmission of the type having a mainshaft with axially extending external splines formed thereon, first and second radially floating mainshaft gears encircling said mainshaft and axially positioned close together, said first mainshaft gear axially spaced from said second mainshaft gear in a first axial direction, said mainshaft gears provided with axially extending internal clutch teeth formed therein, said first mainshaft gear having a first radially extending shoulder formed in the clutch teeth thereof facing in said second axial direction and said second mainshaft gear having a second radially extending shoulder formed in the clutch teeth thereof facing in said first axial direction, a plurality of substantially identical countershafts each having countershaft gears supporting said mainshaft gears and driving said mainshaft gears at different relative rotational speeds, and clutch means selectively operative to clutch said mainshaft gears to said mainshaft one at a time, said improved gear retainer means comprising:

thrust means axially retained to said mainshaft for axially retaining said first and second mainshaft gears relative to said mainshaft and for reacting axial forces on the clutched one of said mainshaft gears toward and away from the other one of said mainshaft gears to said mainshaft through thrust surfaces rotating at the same speed as said mainshaft, said thrust means received in the circumferential space defined by the root diameters of said mainshaft external splines and the root diameters said mainshaft gear clutch teeth, said thrust means comprising:

a first mainshaft washer axially fixed to said mainshaft in at least said first axial direction, said first mainshaft washer having an outer diameter smaller than the apex diameter of said first mainshaft gear clutch teeth;

a first thrust ring axially abutting said first mainshaft washer in the said first axial direction, said first thrust ring having an outer diameter smaller than the outer diameter of said first mainshaft washer;

a first mainshaft gear washer axially abutting said first shoulder in the said first axial direction, said first mainshaft gear washer having an inner diameter greater than the outer diameter of said first thrust ring and less than the outer diameter of said first mainshaft washer, said first mainshaft gear washer telescopically surrounding said first thrust ring and having an axial length slightly less than the axial length of said first thrust ring;

means to axially retain said first mainshaft gear washer axially abutting said first shoulder,

a spacer axially abutting said first thrust ring in said first axial direction, said spacer having an outer diameter greater than the inner diameter of said first mainshaft gear washer and less than the apex diameter of said first mainshaft gear clutch teeth;

a second thrust ring axially abutting said spacer in the said first axial direction, said second thrust ring having an outer diameter smaller than the outer diameter of said spacer;

a second mainshaft gear washer axially abutting said second shoulder in the said second axial direction, said second mainshaft gear washer having an inner diameter greater than the outer diameter of said second thrust ring and less than the outer diameter of said spacer, said second mainshaft gear washer telescopically surrounding said second thrust ring and having an axial length slightly less than the axial length of said second thrust ring;

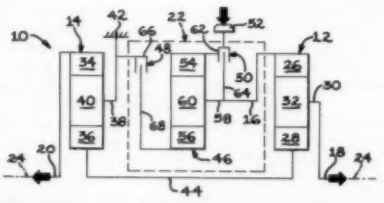
means to axially retain said second mainshaft gear washer axially abutting said second shoulder; and

a second mainshaft washer axially fixed to said mainshaft in at least said second axial direction, said second mainshaft washer axially abutting said second thrust ring in said first axial direction, said second mainshaft washer having an outer diameter smaller than the apex diameter of said second mainshaft gear clutch teeth but greater than the inner diameter of said second mainshaft gear washer.

4,423,644
MULTI-SPEED PLANETARY DIFFERENTIAL

Alan R. Coutant, Chillicothe, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Continuation-in-part of Ser. No. 68,241, Aug. 20, 1979, abandoned. This application Apr. 1, 1981, Ser. No. 248,743
Int. Cl.³ F16H *1/38*
U.S. Cl. 74—710 10 Claims



1. In a planetary differential (10) including a first planetary gear set (12) having a first ring element (26), a first sun element (28) and a first carrier element (30), a second planetary gear set (14) arranged concentrically along a common transverse axis (24) with the first planetary gear set (12) and having a second ring element (34), a second sun element (36) and a second carrier element (38), the first and second sun elements (28,36) being connected for joint rotation, first and second output members (18,20) individually connected to one of the ring and carrier elements (26,30,34,38) of the respective planetary gear sets (12,14), a rotary input member (16) connected to the remaining one of the elements (26,30) of the first planetary gear set (12), and the remaining one of the elements (34,38) of the second planetary gear set 14 being held stationary, the improvement comprising:

planetary means (22) for selectively driving the input member (16) at either of two speeds and including a third planetary gear set (46) concentrically disposed on the common axis (24) with the first and second planetary gear sets (12,14) and having a third sun element (56), the planetary means (22) and first and second gear sets (12,14) continually driving the output members (18,20) at equal levels of torque and at a

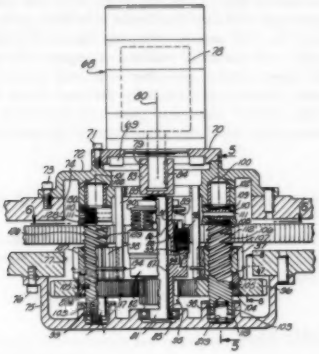
reduction speed ratio, and including brake means (48) for selectively holding the third sun element (56) stationary.

4,423,645

PIPE SPINNER

Roderick K. Abbott, Villa Park; Padmasiri D. Seneviratne, Fullerton, and Joseph A. R. Picard, Fountain Valley, all of Calif., assignors to Varco International, Inc., Orange, Calif.

Filed Jun. 10, 1981, Ser. No. 272,328
Int. Cl.³ F16H *5/52, 3/22, 57/00*
U.S. Cl. 74—810 **32 Claims**



1. A spinner comprising:

a tubular member adapted to be connected to the upper end of a kelly or the like and containing a passage through which drilling fluid flows downwardly;

a reversible motor having a rotor which is power driven in opposite directions; and

a drive for transmitting power from said motor to said tubular member and including two gears driven by the motor and operable to drive said member in opposite directions respectively;

said drive including threaded connection means mounting said gears for axial movement and operable upon rotation of said rotor in one direction to shift a first of the gears axially from a retracted non-driving position to an active position engaging a coacting gear and driving said member in a first direction, and to exert force axially against the second of said gears in the direction of a retracted non-driving position thereof;

said threaded connection means being operable upon rotation of said rotor in its opposite direction to shift said second gear axially from said retracted non-driving position to an active position engaging a coacting gear and driving said member in its second direction, and to exert force axially against said first gear in the direction of said retracted position thereof.

4,423,646

PROCESS FOR PRODUCING A ROTARY DRILLING BIT

David L. Bernhardt, Canton, Mich., assignor to N.C. Securities Holding, Inc., Livonia, Mich.

Filed Mar. 30, 1981, Ser. No. 249,039
Int. Cl.³ B21K *5/02;* **B22C** *9/04;* **B22D** *19/00*
U.S. Cl. 76—108 R **18 Claims**

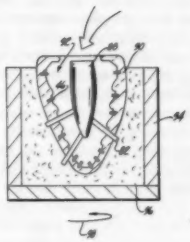
13. A method of producing a rotary drill bit having a steel drill body and a plurality of rigid cutting members secured in a preselected pattern on said drill body and extending outwardly from the surface of said body, comprising the steps of:

(A) producing a form having an exterior shape substantially identical to the exterior shape of said drill body;

(B) holding said cutting members in said preselected pattern using said form;

(C) covering said cutting members and said form with a molding material to create a mold body conforming to said exterior shape of said form;

(D) holding said cutting members in said preselected pattern using said mold body;



(E) removing said form from said mold body and said cutting members;

(F) introducing molten steel into said mold body and around said cutting members;

(G) cooling said molten steel to form said drill body having said cutting members held therein; and

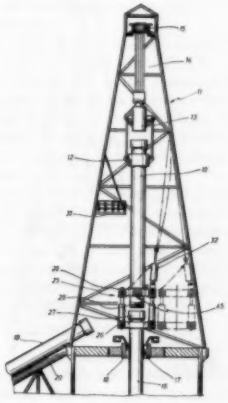
(H) removing said mold body from said drill body.

4,423,647

PIPE ALIGNMENT APPARATUS AND METHOD

Lester W. Toelke, Houston, Tex., assignor to International Tool & Supply Co., Inc., Houston, Tex.

Filed Feb. 6, 1981, Ser. No. 232,144
Int. Cl.³ B25B *13/50*
U.S. Cl. 81—57.34 **9 Claims**



1. Apparatus adapted for use in positioning the ends of pipe joints in axial alignment to facilitate the making of a threaded connection therebetween, comprising:

an upper clamp assembly and a lower clamp assembly, said lower clamp assembly being adapted to grasp the upper end portion of a pipe joint that extends downwardly into a well and said upper clamp assembly being adapted to grasp the adjacent lower end portion of a pipe joint that initially is suspended above said first-mentioned pipe joint, each of said clamp assemblies including a fixed segment and pivotal segment; means for hinging said fixed segment and said pivotal segment to one another, whereby said

segments may be opened to permit said end sections to be positioned therein and then closed in order to grasp the same;

means for connecting said clamp assemblies in vertical alignment with one another to correspondingly align the said end portions of said pipe joints, said connecting means being operable to lower said upper clamp assembly toward said lower clamp assembly to bring the adjacent ends of said pipe joints into abutting engagement; and,

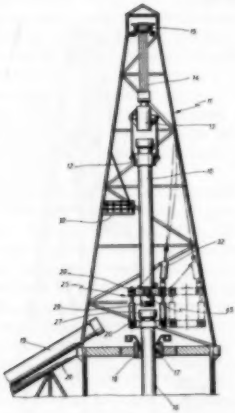
further including first gripping elements mounted on said upper clamp assembly and second gripping elements mounted on said lower clamp assembly, said gripping elements being adapted to be brought into forceful engagement with outer peripheral wall surfaces of said pipe joints as said segments are closed, wherein said gripping elements are mounted for substantially radially directed inward and outward movement on said segments; and means for forcing said gripping elements radially inwardly against said pipe sections upon closure of said segments, and wherein said forcing means comprises cam means cooperable with said gripping elements, said cam means including ring segments rotatably mounted on each of said clamp assemblies, rotation of said ring segments in one rotational direction causing inward movement of said gripping elements and rotation of said ring segments in the opposite rotational direction causing outward movement of said gripping elements; and motor means for rotating said ring segments in said one rotational direction.

4,423,648

PIPE ALIGNMENT TOOL

Lester W. Toelke, Houston, Tex., assignor to International Tool and Supply Co., Inc., Houston, Tex.

Filed Mar. 23, 1981, Ser. No. 246,674
Int. Cl.³ B25B *13/50*
U.S. Cl. 81—57.34 **14 Claims**



1. Apparatus adapted for use in aligning the ends of pipe joints to facilitate the making of a threaded connection therebetween, comprising:

upper and lower clamp assemblies connected together in vertical alignment, said lower clamp assembly carrying a first set of gripping means adapted to engage the upper end portion of a pipe joint that extends downwardly into a well, said upper clamp assembly carrying a second set of gripping means adapted to engage the lower end portion of a pipe joint that initially is suspended above said first-mentioned pipe joint and to support the same, each of said clamp assemblies including pivotally mounted segments that can be opened to permit said end portions to be positioned therein and then closed in order to tightly grip and thereby precisely vertically align said end portions;

means for advancing said upper clamp assembly toward said lower clamp assembly to bring the adjacent ends of said pipe joints into abutting engagement; and

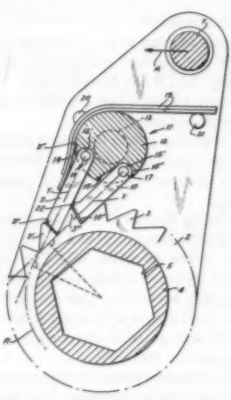
means for tightening the engagement of each of said first and second gripping means with said end portions of said pipe joints in response to downwardly directed force, said tightening means for said first gripping means including downwardly and outwardly inclined coengageable surfaces on said lower clamp assembly and said first gripping means whereby downwardly directed force due to the weight of said apparatus and said suspended pipe joint functions to tighten the engagement of said first gripping means with said first-mentioned pipe joint, said tightening means for said second gripping means including downwardly and inwardly inclined coengageable surfaces on said upper clamp assembly and said second gripping means whereby downwardly directed force due to the weight of said suspended pipe joint functions to tighten the engagement of said second gripping means therewith.

4,423,649

RATCHET DRIVE WITH AN EQUAL LOAD DOUBLE PAWL ARRANGEMENT

John K. Junkers, Saddle River, N.J., and Wilhelm Krautter, Portland, Pa., assignors to Unex Corporation, South Hackensack, N.J.

Filed Jan. 15, 1981, Ser. No. 225,408
Int. Cl.³ B25B *13/46*
U.S. Cl. 81—57.39 **10 Claims**



1. A ratchet drive with an equal load double pawl arrangement comprising support means; a ratchet gear mounted on said support means for turning about its axis; a pair of drive pawls; drive plate means for moving said drive pawls about said axis along an active stroke and a return stroke, said drive pawls having front ends arranged for engaging teeth of said ratchet gear during each active stroke to thereby turn said ratchet gear through a given angle in one direction; means connecting the rear ends of said two drive pawls to said drive plate means for shifting, if due to manufacturing tolerances the front end of only one of said drive pawls should during the active stroke of said drive plate means initially engage a corresponding tooth, the other drive pawl in substantially axial direction into engagement with another tooth to equalize the load onto said two teeth during each active stroke of said drive plate means, said connecting means comprising a member mounted on said drive plate means tiltable about a pivot axis spaced from said axis of said ratchet gear, a leaf spring fastened to said member and engaging one face of one of said drive

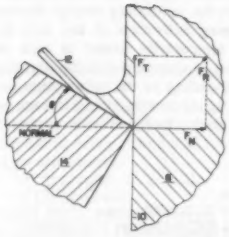
pawls for biasing the latter into engagement with the teeth of said ratchet gear; and a projection in the region of said front end of the other drive pawl and engaging a face opposite said one face of said one drive pawl.

4,423,650

MACHINING PROCESS FOR METAL MIRROR SURFACES

Donald L. Decker; James O. Porteus, both of Ridgecrest, and Darrell J. Grandjean, Inyokern, all of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 18, 1981, Ser. No. 303,450
Int. Cl.³ B23B *1/00, 5/00*
U.S. Cl. 82—1 C 1 Claim



1. A method of producing uniformly hardened metal mirror surfaces with a turning diamond machining bit comprising the steps of:

preparing a given metal surface by diamond turning it with said bit positioned at a top rake angle within the range of −5° to +5°;

machining said metal surface by diamond turning it with said bit positioned at a top rake angle of approximately −30° such that plastic deformations of a predetermined depth occurs in said metal surface due to compression loading with minimal shearing force to form a chip at the metal surface; and

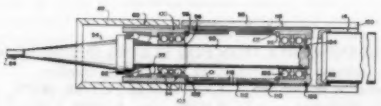
remachining said metal surface a third time by diamond turning it with said bit positioned at a top rake angle of approximately 0° such that sufficient shearing force to machine the surface is present so only a portion of said predetermined depth is removed.

4,423,651

BAR FEED CENTRICALLY GUIDING DEVICE FOR LATHE APPARATUS

Eldred V. Hardee, Loris, S.C., assignor to Hardee Manufacturing Company, Inc., Loris, S.C.

Filed Mar. 24, 1981, Ser. No. 246,981
Int. Cl.³ B23B *13/00*
U.S. Cl. 82—2.5 8 Claims



1. A bar feed centrically guiding device for a lathe comprising

a movable support shaft having a flange element proximate to a free end thereof and having means for receiving bar stock at an opposite end,

a plurality of sleeve members each of hollow cylindrical configuration disposed coxially on said support shaft by intermediate ball bearing means,

said sleeve members each having a sloped surface on the outer cylindrical configuration thereof, with the sloped surface of each sleeve member sloped toward each other, and

an expansible hollow cylindrical ring member having at each end thereof an inwardly sloped surface for cooperatively mating with the sloped surface on the outer cylindrical configuration of said sleeve members and surrounding and engagingly mating therewith, and

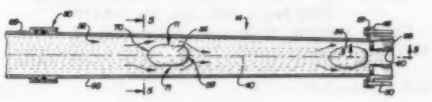
an outer hollow rotatable cylinder exterior of said expansible hollow cylindrical ring member being fixedly retained in position upon any expansion of the expansible hollow cylindrical ring member for rotation therewith.

4,423,652

POTATO CENTERING DEVICE

Elden D. Winslow, Caldwell, Id., assignor to J. R. Simplot Company, Boise, Id.

Filed May 6, 1981, Ser. No. 260,971
Int. Cl.³ B26D *1/03*
U.S. Cl. 83—24 19 Claims



6. In an hydraulic cutting system including an hydraulic flow path, a cutting assembly positioned along the flow path, and means for propelling a potato with a propelling liquid flow stream through the flow path into cutting engagement with the cutting assembly, a method of centering the potato within the flow path, comprising the steps of:

forming a portion of the flow path immediately upstream of the cutting assembly with an elongated and generally linear tube at least about one foot in length and having a longitudinal centerline in substantial alignment with a centerline through the cutting assembly;

accelerating the flow stream and the potato to a substantial velocity at the upstream end of the linear flow path portion;

accelerating the flow stream at the upstream end of the linear flow path portion to a velocity greater than the potato velocity to create hyraulic forces which act upon the potato, when the potato is displaced from a centered position with respect to the centerline, to urge the potato to move back toward the centered position; and

maintaining a differential between the velocities of the flow stream and the potato throughout the length of the tube and for a sufficient period of time substantially until the potato moves into cutting engagement with the cutting assembly to permit the potato to react to the hydraulic centering forces for movement substantially to the centered position prior to engagement with the cutting assembly.

4,423,653

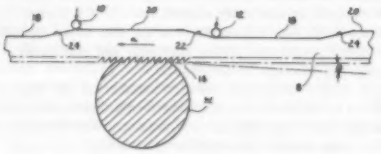
BAND SAW BLADE CONSTRUCTION

L. Brewster Howard, West Springfield, Mass., assignor to American Saw & Mfg. Company, East Longmeadow, Mass.

Filed Oct. 15, 1982, Ser. No. 434,712
Int. Cl.³ B23D *61/12;* B27B *33/06*
U.S. Cl. 83—820 5 Claims

5. Band saw blade having a planar toothed cutting edge for use on band saw machines having a pair of spaced saw blade guides engaged at spaced locations along the back edge of the blade to urge the cutting edge against a work piece for cutting the same, said blade including a plurality of recessed and outer edge portions alternately arranged along the back edge of the blade, said portions being interconnected by relatively short inclined sections, said recessed and outer edge portions being generally parallel to said cutting edge and having a length

related to the saw guide spacing such that one guide is alternately engaged with an outer edge portion and then a recessed edge portion as the blade is advanced thereby, while simultaneously the other saw guide is alternately engaged with a



recessed portion, and then an outer edge portion whereby the blade is alternately tilted from one to another substantially different cutting angle relative to a work piece disposed at a point intermediate the said saw guides.

4,423,654

TONE CONTROL

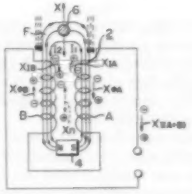
Takayoshi Yamagami, Matsumoto, Japan, assignor to Matsumoku Kogyo Kabushiki Kaisha, Matsumoto, Japan

Filed Jun. 2, 1982, Ser. No. 384,177

Claims priority, application Japan, Dec. 8, 1981, 56-181710[U]

Int. Cl.³ G10H *3/00*

U.S. Cl. 84—1.15 **4 Claims**



1. A tone control for an electromagnetic pick-up for a stringed musical instrument wherein said electromagnetic pick-up comprises at least a pair of coils and a magnet, comprising means for gradually switching the mutual connection between said pair of coils from parallel connection to series connection and vice versa to alter the tone color characteristics of the output from said electromagnetic pick-up, said means for gradually switching comprising at least a ganged pair of rheostats of high rated resistance wherein at one extreme of travel of sliding members of the ganged rheostats the coils are connected in parallel, and at the other extreme of travel of the sliding members of the ganged rheostats the coils are connected in series, and at intermediate positions thereof a combination of parallel and series connection components is achieved in a proportion determined by the relative position of the sliding members of said rheostats.

4,423,655

ELECTRONIC TRANSFER ORGAN

William D. Turner, 12804 Cedarbrook La., Laurel, Md. 20811

Division of Ser. No. 293,273, Aug. 17, 1981, Pat. No. 4,338,849, which is a continuation-in-part of Ser. No. 44,071, May 31, 1979, abandoned. This application May 7, 1982, Ser. No. 376,105

Int. Cl.³ G10H *1/02*

U.S. Cl. 84—1.19 **1 Claim**

1. In an electronic transfer organ, comprising in combination:

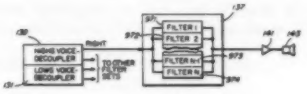
a keyboard having a multiplicity of keys, each said key corresponding to at least one of a multiplicity of nominal pitches to be sounded;

stop means having at least one stop, each said stop corresponding to a voice to be sounded;

at least one large memory for each voice, each said large memory having stored therein individualized information comprising at least the amplitude, waveform, frequency, keying phases, and spatial position in the distance-from-listener dimension of each of said nominal pitches to be sounded;

at least one array of small memories corresponding to each said large memory, said small memories being substantially identical to each other, the number of small memories in each array being equal to the number of keys that may be desired to activate concurrently; means responsive to depression of any key to activate one of said small memories in each array to receive information and cause transfer from each of said corresponding large memories of the said individualized information including said spatial position therein corresponding to that depressed key to the respective small memories corresponding to the depressed key for temporary storage therein;

means for causing activation of any stop to convert the information temporarily stored in each small memory corresponding to that stop and the depressed key into a signal corresponding to the information so stored, there being a said signal corresponding to each note, each said signal being individualized with respect to amplitude,



waveform, frequency, and keying phases; means responsive at least to said transferred spatial position information when a key is depressed, for generating at least four composite signals from said transferred individualized signals, each said composite signal representing a distinctive combination of the amplitudes, waveforms, frequencies and keying phases of its comprised individualized signals; and

separate switch means for each voice for producing a pair of amplitude-multiplication factors characteristic of the lateral spatial position of that voice; sound-generating means responsive to said four or more composite signals and said pair of amplitude-multiplication factors for generating sounds whose combined acoustic sound image approximates the acoustic sound image of a multiplicity of individualized sound sources distributed in at least two orthogonal spatial dimensions; said sound-generating means including a multiresonant filter for each of said composite signals as modified by said amplitude-multiplication factors, said filters being adapted to modify the input currents thereto so that input currents of different frequencies are reinforced or attenuated according to the overall transfer characteristics of the filters, the resonant peaks in each multiresonant filter set spanning a plurality of octaves, whereby each of the peaks of each multiresonant filter set can be adjusted so that said combined acoustic sound image approximates the resonance characteristics of the enclosure of a pipe organ.

4,423,656

FRAME CONSTRUCTION FOR STRING INSTRUMENTS

Leif S. Johansson, Gruvgalan 11, Atvidaberg, Sweden

Continuation of Ser. No. 174,524, filed as PCT SE/00079, Apr. 2, 1979, published as WO 79/0089, Nov. 1, 1979, § 102(e) date Nov. 5, 1979, abandoned. This application Oct. 29, 1981, Ser. No. 316,296

Claims priority, application Sweden, Apr. 6, 1978, 7803867

Int. Cl.³ G10C *3/08*

U.S. Cl. 84—188 **5 Claims**

1. A musical instrument comprising a series of modules detachably mounted independent of one another and generally

transverse to and on at least two supporting beams, each said module:

(a) being an elongate hollow metal extrudate of uniform rectangular cross-section over the length thereof and having a length different from that of any other module;

(b) having a tensioned string thereon spaced from the surface of said extrudate;

(c) having means for attaching the ends of said string to said extrudate and for tensioning and tuning said string; and

(d) being adapted to being strung and tuned prior to being assembled on said beams.

4,423,657

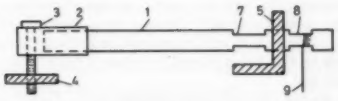
DEVICE FOR STRINGING OF STRINGS IN PIANOS AND THE LIKE

Gunnar Sjostrand, Vattugrand 7, 591 45 Motala, Sweden

Filed Oct. 2, 1981, Ser. No. 308,135

Int. Cl.³ G10C *3/10*

U.S. Cl. 84—207 **10 Claims**



1. A device for stringing of strings in pianos, harpsichords, zithers and the like comprising: a tuning rod having an axis, said tuning rod being adapted to tension a string; a frame member having a slot adapted for locking said tuning rod, said frame member being adapted to serve as a fulcrum for said tuning rod; said tuning rod having an end adapted to wind the string, located on one side of said slot; said tuning rod having another end, located on an opposite side of said slot; a means for applying a force to finely adjust force acting upon said tuning rod, said means for applying a force acting upon said other end, whereby a force applied by said means for applying a force acts in a direction generally parallel to said string to counteract a moment generated by tension in the string about said frame member serving as a fulcrum; said end and said other end being movable relative to each other along said axis; a locking portion of said rod being located adjacent to a coarse-adjustment portion of said rod; said locking portion being shaped to slide into said slot and prevent relative rotation between said slot and said locking portion, said coarse-adjustment portion being narrower than said locking portion in at least one dimension, being adapted to permit axial rotation of said tuning rod when said coarse-adjustment portion is engaged in said slot; a means for adjusting axial length of said tuning rod whereby said locking portion and said coarse-adjustment portion are selectively movable into said slot, to prevent axial rotation of said tuning rod while said locking portion is within said slot and to permit axial rotation when said coarse-adjustment portion is within said slot; whereby engagement of said coarse-adjustment section with said slot allows winding of the string about said end to create tension in the string, engagement of said locking section with said slot prevents unwinding of the string thereby locking in said coarse-adjustment, and said mens for applying a force may be varied finely so as to vary the torque about said frame member serving as a fulcrum so as to finely adjust tension in the string.

4,423,658

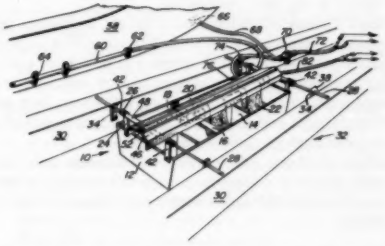
GRAND PIANO HUMIDIFIER

Allen M. Foote, P.O. Box 68, Dana, N.C. 28724

Filed Aug. 4, 1981, Ser. No. 289,896

Int. Cl.³ G10C *3/00*; G05D *22/02*

U.S. Cl. 84—453 **13 Claims**



1. A humidifier for a grand piano or other small enclosed space comprising a tank receiving a supply of water, support means for the tank extending between structural components of the grand piano or other enclosed space, a heater positioned longitudinally of the top of the tank and supported above the water level in the tank, evaporative pad means extending from the heater into the water in the tank to facilitate evaporation of water from the tank, and a baffle positioned above the heater and adapted to be oriented closely below the central portion of the soundboard of a grand piano, said baffle including an elongated inverted channel-shaped member positioned longitudinally centrally of the tank in spaced relation above the heater, and means supporting the baffle from the tank support means, said support means for the tank including a pair of elongated support rods, each end of the tank having a pair of spaced brackets, hook means on the upper ends of the brackets for detachable engagement with the support rods, said means supporting the baffle including a pair of elongated tubes with one of the tubes being disposed adjacent each end of the baffle, said tubes having the baffle secured thereto, the lower surface of the tubes being longitudinally split to enable the tubes to be positioned over the support rods between the support brackets attached to the tank thereby supporting the baffle in centralized relationship to the tank.

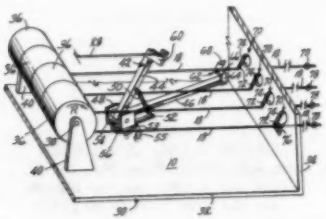
10. A humidifier for a piano or other musical device having a soundboard with structural components disposed below the soundboard and defining a small space for receiving the humidifier, said humidifier comprising an open-topped tank provided with a supply of water, means supporting the tank from the structural components in the small space, a baffle overlying the tank and disposed below the soundboard, means supporting the baffle from said tank supporting means, said baffle supporting means enabling assembly of the baffle with the tank after the tank is supported by the tank support means, and means associated with the tank to facilitate vaporization of water from the tank.

4,423,659

PAGE TURNER FOR SHEET MUSIC

Alastair K. Cassels-Brown, 13 Saint John's Rd., Cambridge, Mass. 02138

Filed Oct. 16, 1981, Ser. No. 311,917
Int. Cl.³ G10G 7/00
U.S. Cl. 84—486 10 Claims



1. A mechanism for turning a plurality of successive pages of sheet music or the like, comprising:

a biased filament extending from a sheath, through an asymmetrical opening in a panel, and attached to a page to be turned, said asymmetrical opening in said panel comprising an opening having a narrow portion sufficient to prevent a stop means attached to each filament from going therethrough, and a wide portion sufficient to permit said stop means to go therethrough; and

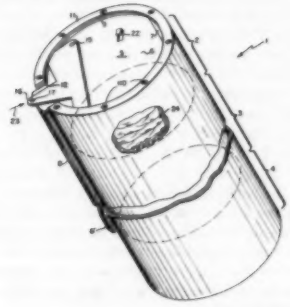
a release mechanism for moving said filament transversely with respect to said opening to permit said stop means to be pulled therethrough and said page thereattached to be turned.

4,423,660

PARACHUTE RETAINER LATCHING MECHANISM

Charles W. Ouellette, Portsmouth, R.I., assignor to Raytheon Company, Lexington, Mass.

Filed Aug. 4, 1981, Ser. No. 289,938
Int. Cl.³ F41F 5/02
U.S. Cl. 89—1.5 R 8 Claims



1. A sonobuoy container adapted to be inserted into a launching tube comprising:

a container having an opening to its interior at one end of said container;

a cover for said end opening;

a latch mechanism adapted to releasably secure said cover to said container end;

said latch mechanism, when in position to secure said cover, comprising means for preventing the insertion of said container into said launching tube;

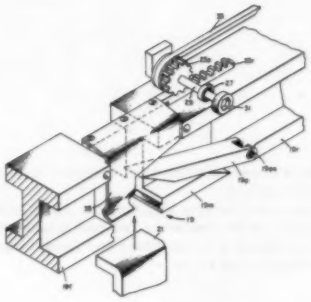
said latch mechanism, when in position to release said cover, allowing the insertion of said container into said launching tube.

4,423,661

RAIL LAUNCHER

David W. Sheldon, Westford, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Feb. 1, 1982, Ser. No. 344,899
Int. Cl.³ F41F 7/00
U.S. Cl. 89—1.819 4 Claims



1. In a rail launcher wherein a pair of lugs affixed to a guided missile may slide along a substantially continuous rail, the improvement comprising:

(a) a first movable section of rail initially aligned with the substantially continuous rail, one end of such first movable section normally abutting a first fixed section of such rail;

(b) a second movable section of rail initially aligned with the substantially continuous rail, one end of such second movable section normally abutting the second end of the first movable section and the second end of such second movable section being hinged to a second fixed section of such rail; and

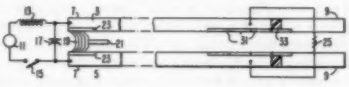
(c) a wedge formed by the abutting ends of the first and the second movable sections.

4,423,662

MUZZLE ARC SUPPRESSOR FOR ELECTROMAGNETIC PROJECTILE LAUNCHER

Dan R. McAllister, Sunnyvale, Calif., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 8, 1981, Ser. No. 309,862
Int. Cl.³ F41F 1/00
U.S. Cl. 89—8 5 Claims



1. An electromagnetic projectile launcher comprising:

a pair of generally parallel conductors having a breech and a nozzle end;

means for conducting current between said conductors and for accelerating said projectile;

a source of high current connected to said conductors;

a first impedance disposed across said conductors adjacent the muzzle end thereof; and

a second impedance disposed in at least one of said conductors on the muzzle side of where said first impedance is connected across said conductors, said second impedance increasing in resistivity as the distance to the muzzle decreases;

whereby current is commutated to said first impedance to suppress muzzle arcing.

4,423,663

ARRANGEMENT FOR A MORTAR IN AN ARMORED VEHICLE

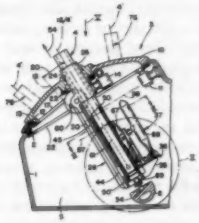
Anton Politzer, Lauf/Pegn., and Wilhelm Machmer, Nuremberg, both of Fed. Rep. of Germany, assignors to Firma Diehl, Nuremberg, Fed. Rep. of Germany

Filed Oct. 31, 1977, Ser. No. 849,520

Claims priority, application Fed. Rep. of Germany, Nov. 5, 1976, 2650622

Int. Cl.³ F41H 7/08

U.S. Cl. 89—40 A 5 Claims



1. Arrangement for a mortar in an armored vehicle, including a gun laying device, and a ball bearing for said mortar located in a vehicle traverse; characterized by a gun mount, the tube of said mortar being axially displaceably supported in said gun mount, said gun mount including a spherical head fitted into said ball bearing in said traverse and a tubular section for axially guiding said mortar tube; a pair of armored shutters forming said gun laying device being rotatable relative to each other in said vehicle, and means on said mortar tube and said gun mount to facilitate displacement of said mortar tube on said gun mount along the direction of said tubular section for the breech-ended loading of munition and for locking into a firing position subsequent to loading of said mortar.

4,423,664

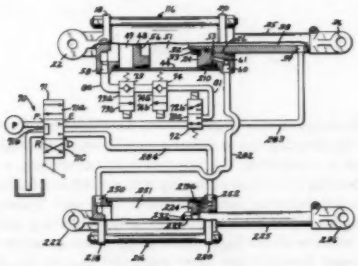
DEPTH CONTROL APPARATUS

Andrew F. Buchl, 401 9th Ave. South West, Rugby, N. Dak. 58368

Filed Apr. 10, 1981, Ser. No. 253,014

Int. Cl.³ F01B 25/26

U.S. Cl. 91—1 4 Claims



1. A hydraulic system comprising:

(a) a main cylinder having first and second ends, a main piston, a floating piston, a first region defined by the space between said floating piston and said first end, a second region defined by the space between said floating piston and said main piston, a third region defined by the space between said main piston and said second end;

said main piston including a stem extending outside said cylinder for transmission of fluid into and out of said second region;

said first and second ends including first and second apertures respectively for transmission of fluid into and out of said first and third regions, respectively;

passage means in said cylinder proximate said second end for permitting fluid communication between said second aperture and said second region when said main piston is substantially in abutment with said second end;

(b) one way check valve means for preventing the flow of fluid into and out of said first aperture;

(c) a slave cylinder having first and second ends, third and fourth apertures respectively in said ends, a second main piston, second passage means in said slave cylinder proximate said second end for permitting fluid to flow between said third and fourth apertures and around said second main piston;

(d) first conduit means for connecting said second and third apertures;

(e) control means for controlling the flow of fluid into and out of said first, second, third and fourth apertures, said control means having:

(1) a first position thereof which disables said check valve means and permits the flow of fluid into said first aperture, out of said second aperture, into said third aperture and out of said fourth aperture, thereby causing said floating piston to move toward the second end,

(2) a second position thereof which disables said check valve means and permits the flow of fluid into said fourth aperture, out of said third aperture, into said second aperture and out of said first aperture, thereby causing said floating piston to be moved toward said first end,

(3) a third position thereof which allows the flow of fluid into said stem, out of said second aperture and into said third aperture, and out of said fourth aperture, thereby causing said main piston to move toward the second end,

(4) a fourth position thereof which allows the flow of fluid into said fourth aperture, out of said third aperture to said second aperture, and out of said stem, thereby causing said main piston to move toward the first end.

4,423,665

MECHANICALLY CONTROLLABLE POWER BOOSTER

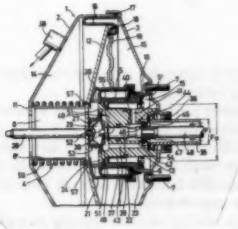
Lucas H. Haar, Niddatal, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Jun. 23, 1981, Ser. No. 276,585

Claims priority, application Fed. Rep. of Germany, Jul. 2, 1980, 3024967

Int. Cl.³ F15B 9/10; F16J 3/02

U.S. Cl. 91—369 B 35 Claims



1. A mechanically controllable brake power booster comprising:

a booster housing having a longitudinal axis;

a reinforcement element disposed coaxial of said axis within said booster housing interconnecting both end walls of said booster housing transverse of said axis, said reinforcement element having a tubular section;

an axially movable piston arrangement disposed in said booster housing subdividing the interior of said booster housing into a low-pressure chamber and a working chamber, said piston arrangement including a working piston encompassing said reinforcement element to provide a first boosting force and a valve housing disposed within said tubular section to provide a second boosting force, said valve housing containing a valve device for the purpose of controlling the pressure present in said working chamber; and

a reaction device supported on a first return spring bearing against said movable piston arrangement coaxial of a force output member, said valve housing and a control element of said valve device, said reaction device transmitting said second boosting force onto said control element in opposition to an actuating direction when said booster is operated;

said working piston bearing directly against and applying said first booster force to said force output member; and

said valve housing providing a second piston which is axially movable independently of said working piston to transmit said second boosting force solely onto said reaction device.

4,423,666

BRAKE BOOSTER

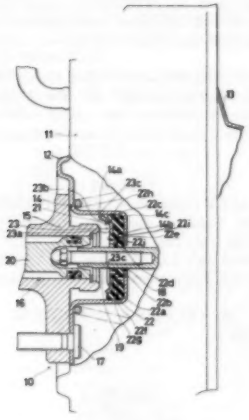
Atsushi Ohmi, Anjo, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Continuation of Ser. No. 145,692, May 1, 1980, abandoned. This application Aug. 24, 1982, Ser. No. 411,040

Claims priority, application Japan, May 28, 1979, 54-065812

Int. Cl.³ F16J *15/18*

U.S. Cl. 92—168 **3 Claims**



1. A brake booster for automotive vehicles comprising:

a housing including a shell;

a cup-shaped portion provided at a central portion of said shell integrally therewith and having an annular wall, a base wall, and a rounded boundary portion formed therebetween such that said annular wall, said base wall and said rounded boundary portion form a substantially continuous cup-shaped portion;

an annular sealing member having an axis and positioned in an interior portion of said cup-shaped portion and within an interior portion of said shell and abutting against said base wall along a first side of said sealing member;

said sealing member having along said first side a first circumferential groove and an annular bead portion at an outer periphery thereof in sequential order radially outwardly;

an output rod extending from an interior portion of said housing for actuating a master cylinder and passing hermetically and slidably through said sealing member;

a single retainer disposed adjacent to a second side of said sealing member located opposite said first side and including an annular portion of said single retainer parallel with said base wall and in snug contact with an annular flat side face of said sealing member, a coned portion positively supporting said bead portion radially from an inner side of said bead portion for establishing continuous intimate contact between said rounded boundary portion and said bead portion such that said single retainer and said sealing member exclusively establish said continuous and intimate contact, and a plurality of securing hooks radially projecting from said coned portion of said single retainer for fixedly engaging said annular wall wherein said coned portion positively supporting said bead portion further comprises means for positively supporting said sealing member at an angle with respect to said axis and wherein said sealing member includes at said second side thereof a second circumferential groove, a projection extending therefrom, a flat portion, and a coned surface in sequential order radially outwardly, said coned portion snugly contacting said coned surface of said sealing member.

4,423,667

BEARING

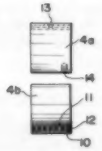
Yoshimasa Hayashi, Kamakura, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed May 5, 1980, Ser. No. 146,930

Claims priority, application Japan, May 9, 1979, 54-61489

Int. Cl.³ F02F *7/00*; F01B *1/00*

U.S. Cl. 92—261 **5 Claims**



1. In an automotive engine having a cylinder block cooperating with a bearing cap to define a metal housing through which extends a crankshaft, the improvement comprising a sleeve-type bearing consisting of mating semi-cylindrical half-sections interposed between said crankshaft and said housing, said bearing having an inner sleeve rotatably supporting said crankshaft, an outer sleeve supported by said housing, means fixedly interposed between said inner and outer sleeves for damping the oscillation of said crankshaft and a locking portion integrally formed on at least said outer sleeve, said locking portion protruding radially outwardly from the exterior cylindrical surface of said outer sleeve and being adapted to be received in mechanical engagement with said housing to fixedly locate said bearing in relation thereto.

4,423,668

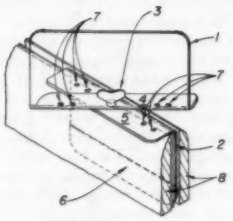
UNIVERSAL AIR DEFLECTOR

Alvin L. Long, Civilian Gen. Del., Beale A.F.B., Calif. 95903

Continuation-in-part of Ser. No. 91,730, Nov. 8, 1979, abandoned, which is a continuation-in-part of Ser. No. 917,953, Jun. 22, 1978, abandoned. This application Oct. 13, 1981, Ser. No. 310,622

Int. Cl.³ B60J 1/20

U.S. Cl. 98—2.12 1 Claim



1. In an air deflector device for use across the threshold of a window opening of a vehicle, comprising: an L-shaped air deflector member having adjustment holes in the horizontal portion of the member, an identical inverted L-shaped holding member having adjustment holes in the horizontal portion that mate with selected holes of the L-shaped air deflector member, the vertical portion of the inverted holding member being insertable into a window well, a bolt insertable into the selected mating holes of the two members for pivotal adjustment of the L-shaped air deflector member relative to the inverted L-shaped holding member to allow the angle of air adjustment to be changed as well as the inboard and outboard positions of the air deflector member on the holding member, a wing nut for securing the bolt and the L-shaped member in its adjusted position, the vertical portion of the holding member being coated with high friction rubber material to prevent slippage or dislodgement when inserted into the window well.

4,423,669

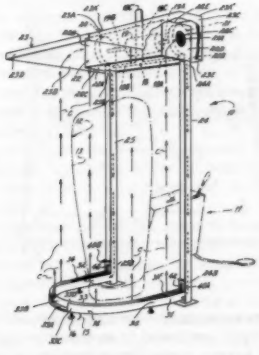
AIR CURTAINING APPARATUS

Norman J. Bullock, Prospect, and John W. Snyder, Louisville, both of Ky., assignors to Cissell Manufacturing Company, Louisville, Ky.

Filed Mar. 3, 1982, Ser. No. 354,216

Int. Cl.³ F24F 9/00

U.S. Cl. 98—36 5 Claims



1. An air curtaining apparatus comprising:

an elongated horizontally disposed generally U-shaped air manifold having an upwardly directed air outlet along substantially the entire length thereof to establish a U-shaped vertical air curtain and having first and second air inlets at opposite ends, thereof through which air is supplied to said manifold, said manifold including a central front segment and right and left side segments disposed on either side of said central segment between opposite ends of said central segment and said first and second manifold air inlets;

an air-collecting hood having an interior disposed above and in general vertical alignment with said manifold to collect air from said air curtain;

blower means structurally connected to said hood and having an air inlet communicating with said hood interior for removing collected air therefrom, and first and second air outlets at which pressurized air is provided, said first and second outlets disposed in vertical alignment with and above said first and second air inlets of said manifold;

first and second vertically disposed ducts interconnecting said first and second air outlets of said blower means and said first and second air inlets of said manifold for conveying pressurized air from said blower means to said manifold in a vertically downwardly direction, said first and second ducts structurally interconnecting said manifold with said hood and blower means to provide the sole support for said hood and blower means;

an air deflector in each of said right and left side segments of said manifold proximate their respective junctions with said central manifold segment, each said air deflector including an inclined panel spanning only the upper portion of its respectively associated side manifold segment, each said panel being inclined upwardly toward said central manifold segment to direct only a portion of the pressurized air entering said manifold inlets from said vertical ducts in an upwardly direction for emission from said side manifold segments while permitting the remaining portion of said entering air to pass in a horizontal direction beneath and beyond said deflectors to said central segment of said manifold located beneath said deflectors for upward emission therefrom; and

a damper in each of said air inlets of said manifold, each said damper including a vertically disposed panel which defines a vertically extending slot within a respective side segment, each said panel being selectively vertically shiftable to facilitate altering the flow rate of air from said vertical ducts into said horizontal side manifold segments, said vertical slot so defined assuring at least some horizontally directed air flow into said side segments from said vertical ducts throughout substantially the entire height of said side manifold segments regardless of the vertical positions of said damper panels, in turn ensuring vertical emission of inlet air from said side manifold segments and some flow of inlet air beneath the deflector panels to the central manifold segment for vertical emission therefrom.

4,423,670

FERMENTING AND CARBONATING APPARATUS

Earnest M. Tenison, 506 E. 11th St., Port Angeles, Wash. 98362

Filed Jun. 29, 1982, Ser. No. 393,249

Int. Cl.³ A23L 2/40

U.S. Cl. 99—275 16 Claims

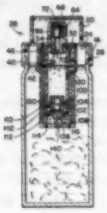
1. A fermenting and carbonating apparatus comprising:

a container and a cap therefor;

a valve in the cap;

a first chamber within the container attached to the cap;

a second chamber within the container attached to the cap; and



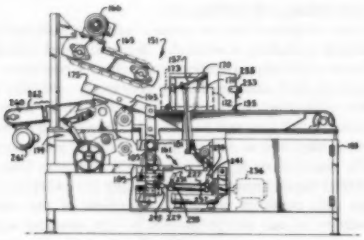
material within the first and second chambers for treating material within the container.

4,423,671

FLOATING KNIFE ASSEMBLY FOR A MEAT DEFATTING MACHINE WITH POSITIVE BLADE POSITION

Robert P. Murphy, 1807 Commercial St., Joseph, Mo. 64503

Continuation-in-part of Ser. No. 281,006, Jul. 6, 1981, Pat. No. 4,393,761. This application May 5, 1983, Ser. No. 491,938
Int. Cl.³ A22C *17/12*
U.S. Cl. 99—486 6 Claims



1. In a meat defatting machine adapted for removing all but a generally consistant thickness of a portion of fat from successive pieces of meat, each having a fat layer of varying thickness thereon and a lean portion of generally consistant thickness; said machine comprising a housing, a conveyor for moving meat therebetween, a defatting knife positioned above the conveyor and moveable through a continuous range of positions thereabove, a gauge plate member engageable with a top surface of each successive piece of meat and means connecting the knife blade to the gauge plate to position the knife blade a desired amount above the conveyor dependent upon the thickness of each successive piece of meat, the improvement comprising:

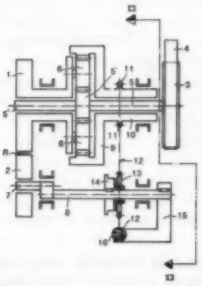
(a) a knife blade position locking means cooperating with said knife blade and adapted to lock said knife blade in a predetermined position above a plane associated with said conveyor whereby said knife blade does not move relative to said conveyor as a piece of meat is urged therepast such that a generally consistent thickness of fat layer is left along the piece of meat.

4,423,672

DEVICE FOR FEEDING AND TENSIONING THE PACKAGING STRAP IN STRAP APPLYING MACHINES

Franco Tacchini, Milan, Italy, assignor to Officina Meccanica Sestese S.p.A., Paruzzaro, Italy

Filed Mar. 16, 1982, Ser. No. 358,802
Claims priority, application Italy, Mar. 24, 1981, 20695 A/81
Int. Cl.³ B65B *13/22*
U.S. Cl. 100—4 8 Claims



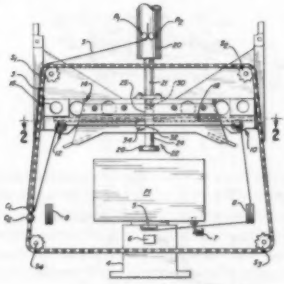
1. Device for feeding and tensioning the strap in strap applying machines, of the type in which the strap is moved forward and fed between a pair of wheels, one being a drawing wheel rotated by motor means and the other being an idly rotating contrast wheel pressed against the first wheel through the strap, characterized in that the drawing wheel (1) is caused to rotate by an epicyclic train the free element (9) of which is connected by a mechanical drive (11, 12, 17, 16, 15) to the shaft (8) of the contrast wheel (2), while the contrast wheel (2) is mounted idle onto an eccentric pin (7) of said shaft (8), said mechanical drive (11, 12, 17, 16, 15) comprising a movable control element (17) being apt to act elastically on the shaft (8) of the contrast wheel (2) in order to cause the rotation thereof.

4,423,673

APPARATUS FOR PREDRAPING STRAPPING ABOUT AN ARTICLE TO BE STRAPPED

Richard I. Ball, Round Lake, Ill., assignor to Signode Corporation, Glenview, Ill.

Filed Jun. 2, 1982, Ser. No. 384,218
Int. Cl.³ B65B *13/10*
U.S. Cl. 100—28 4 Claims



1. A chuteless apparatus for forming a loop of flexible binding about an object positioned in an object receiving station, said apparatus having means for restraining an end of said binding adjacent said receiving station, means for pulling a trailing portion of the binding in a path around said object, means for sealing the loop, a clamp bar assembly including an object contacting member carried by said clamp bar assembly

adapted to contact an object in said receiving station and means for moving said clamp bar assembly between an elevated position spaced above said object receiving station and a lowered position contacting said object to hold said object in said object receiving station, and means for then severing the sealed loop from the rest of the binding, said apparatus characterized by the improvement comprising;

means for continuing said pulling of a trailing portion of said binding after binding a first object, said means for continuing said pulling of the binding including means for pulling the binding through a major portion of the locus of said path around said receiving station, and means for temporarily guiding spaced portions of said binding around said receiving station to temporarily retain the binding in a configuration spaced outwardly of said receiving station for a major portion of the locus of said path, said guiding means including spaced catch block assemblies rotatably mounted within said clamp bar assembly and gear means interconnecting said object contacting member and catch block assemblies to rotate said catch block assemblies to release the binding therefrom when the object contacting member contacts the object to be bound.

4,423,674

BELT PRESS WITH HOSE-TYPE HYDRAULIC FORCE TRANSMITTER

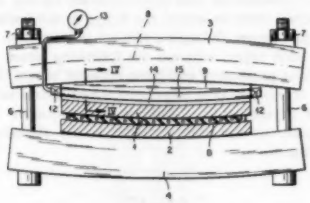
Peter Thies, Ennepetal-Voerde, Fed. Rep. of Germany, assignor to Wagener Schwelm GmbH & Co., Schwelm, Fed. Rep. of Germany

Filed Jul. 24, 1981, Ser. No. 286,669

Claims priority, application Fed. Rep. of Germany, Jul. 26, 1980, 3028401

Int. Cl.³ B30B *15/06*

U.S. Cl. 100—99 **10 Claims**



1. A belt press comprising:

a plurality of upper and a plurality of lower traverses respectively having lower and upper traverse faces;

upper and lower press platens carried on and between said traverses and having respective upper and lower platen faces respectively confronting said lower and upper traverse faces, whereby a belt to be pressed can be engaged between said platens;

at least one bend-compensating element having a pair of nonparallel upper and lower surfaces and engaged between one of said platen faces and the confronting traverse faces;

a hydraulic force-transmitter engaged between said bend-compensating element and one of the respective traverse and platen faces, said transmitter being formed of a plurality of diametrally compressible but circumferentially unstretchable hydraulic hoses forming at least one substantially closed chamber of a predetermined maximum volume, and of a body of an incompressible fluid only partially filling said chamber; and

mechanically actuated means including bolts engaged between said traverses for displacing said traverses toward each other and thereby pressing said platens against a belt engaged therebetween.

4,423,675

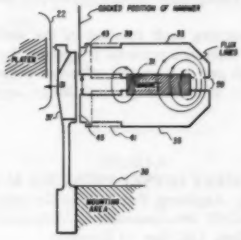
MAGNETIC CIRCUIT AND PRINT HAMMER

Zong S. Luo, and Chor S. Chan, both of Boise, Id., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Mar. 8, 1982, Ser. No. 355,982

Int. Cl.³ B41J *3/00*

U.S. Cl. 101—93.04 **20 Claims**



1. A printing device comprising:

a permanent magnet for providing a source of magnetic flux;

two pole pieces with said permanent magnet located therebetween, having a first path of low magnetic reluctance between said pole pieces; and

print hammer means comprising an integral unit having two ends, one end being held fixed against transverse vibrations, said print hammer means being located in close proximity to said pole pieces for providing a second path of low magnetic reluctance between said pole pieces, said second path having a magnetic reluctance which is lower than the magnetic reluctance of said first path, said print hammer means also for switching magnetic flux from said permanent magnet between said first and second paths, and said integral unit having a frequency spectrum of normal modes for transverse vibrations such that the ratio of the frequency of the second lowest frequency mode to the frequency of the lowest frequency mode of said spectrum is greater than 7.

4,423,676

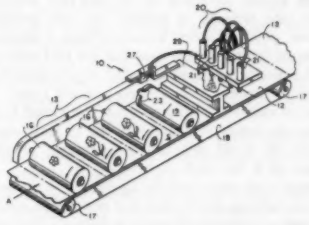
METHOD AND APPARATUS FOR PRINTING COMPOSITE DESIGNS ON FABRIC

Keenar A. Neel, Concord, N.C., assignor to Cannon Mills Company, Kannapolis, N.C.

Continuation-in-part of Ser. No. 261,693, May 8, 1981, abandoned. This application Nov. 25, 1981, Ser. No. 325,093

Int. Cl.³ B41M *1/12*; B41F *31/28*; B05C *9/06*

U.S. Cl. 101—211 **12 Claims**



9. A printing apparatus for printing patterns on a surface of a length of textile fabric advanced therethrough, which comprises:

a rotary print screen mounted for printing a repeating background design pattern at a predetermined repeat interval along the length of the fabric;

a peripheral surface marking on said print screen, the position of the surface marking being predetermined relative to the longitudinal position of a predetermined portion of the background pattern;

means for advancing the fabric in a horizontal plane through the printing apparatus in contact with the print screen;

an airbrush gun mounted downstream of the print screen for applying a variable tone design feature to a selected portion of the background design previously printed on the fabric; and

means for detecting each rotation of the surface marking past a fixed reference point for triggering the operation of said airbrush gun at a precise reference registration point with respect to the background design operation to be airbrushed.

4,423,677

ROTARY SHEET OFFSET PRINTING MACHINE

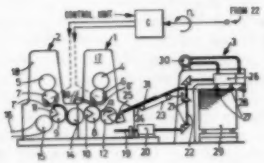
Hermann Fischer, Augsburg, Fed. Rep. of Germany, assignor to M.A.N.-ROLAND Druckmaschinen Aktiengesellschaft, Offenbach am Main, Fed. Rep. of Germany

Filed Mar. 1, 1982, Ser. No. 353,230

Claims priority, application Fed. Rep. of Germany, Mar. 7, 1981, 3108808

Int. Cl.³ B41F *13/24*

U.S. Cl. 101—232 6 Claims



1. Rotary sheet offset printing machine having

a sheet supply apparatus (3, 41);

at least one plate cylinder (4, 5; 42, 43);

at least one rubber blanket cylinder (6, 7; 44, 45) associated with the at least one plate cylinder and, during printing, positioned for continuous contact therewith;

means (I) for supplying ink to the at least one plate cylinder;

and a printing, or impression cylinder (8, 9; 46),

said at least one blanket cylinder and said impression cylinder being relatively shiftable with respect to each other for selective printing engagement or for surface separation, respectively;

wherein, in accordance with the invention,

all said cylinders have the same diameter;

said sheet supply apparatus (3, 41) has two different sheet supply rate settings to supply, for one predetermined cylinder speed, in a first supply setting, a predetermined number of sheets per unit time and, for said same predetermined cylinder speed, in a second supply setting, half the number of predetermined sheets per unit time;

and control means (C) are provided, connected to and controlling the relative position of the at least one blanket cylinder (6, 7; 44, 45) and the printing, or impression cylinder (8, 9; 46) such that

(a) when said sheet supply apparatus is in the second supply setting, the blanket and impression cylinders are moved to a separated position during a first revolution of the cylinders to provide for inking of the blanket cylinder, and the blanket cylinder and the impression cylinder are moved to engaged position during a second or subsequent revolution, to permit double inking of the blanket cylinder from the plate cylinder without transfer of printing information from the blanket cylinder after the first inking, and printing on a sheet during said subsequent revolution,

and

(b) when said sheet supply apparatus is in said first supply setting, the blanket and impression cylinders are in continuous printing engagement to provide for single inking of the blanket cylinder and sheet feed at said predetermined number per unit time.

4,423,678

APPARATUS FOR ENGAGING IMPRESSION CYLINDER

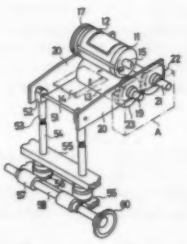
Katsutoshi Matsumoto, Kyoto, Japan, assignor to Dainippon Screen Mfg. Co., Ltd., Japan

Filed Jun. 4, 1982, Ser. No. 384,916

Claims priority, application Japan, Jun. 23, 1981, 56-98005

Int. Cl.³ B41F *13/24*

U.S. Cl. 101—248 3 Claims



1. An apparatus for engaging an impression cylinder with a rotating plate cylinder comprising a mechanism by which the impression cylinder is adapted to be disengaged from the plate cylinder in a period between two angular sequential phases of said rotating plate cylinder, wherein the preceding phase being an angular position of said plate cylinder having a printing plate attached thereon where the image area of said printing plate has just passed through a contact point where the cylinders abut each other, whereas the following phase being the other angular position of said plate cylinder where the trailing end of an object that is to be printed is just before said contact point, the object being of sufficient thickness to deform a printing plate on the plate cylinder in the absence of such disengagement.

4,423,679

IMPRINTER HAVING A REMOVABLE CARTRIDGE CONTAINING A PLURALITY OF ROLLER PLATENS

John A. Maul, Sr., Lyndhurst, Ohio, assignor to DBS, Inc., Randolph, Mass.

Filed Aug. 20, 1981, Ser. No. 294,437

Int. Cl.³ B41F *3/04*

U.S. Cl. 101—269 6 Claims

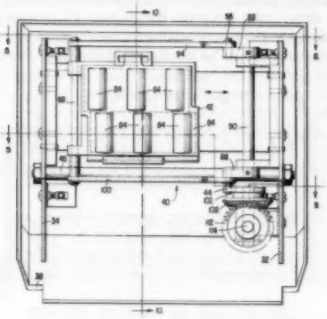
1. An imprinter comprising:

(a) a base member including means for receiving a printing member having a line of raised printing elements thereon,

(b) carriage means movably mounted with respect to said base member,

(c) a roller platen assembly mounted by said carriage means for imprinting data from said raised printing elements onto a form positioned over said printing member, said roller platen assembly being movable in a first path across said printing member from a home position to an actuated position and in a second path from said actuated position back to said home position to perform a printing cycle where the printing cycle commences when the roller platen assembly leaves the home position to travel to the actuated position and terminates when the roller platen assembly returns to the home position from the actuated position, said roller platen assembly having means for supporting at least one row of interconnected roller platens where said row and said line of raised printing ele-

ments extend in a direction parallel to said first and second paths and where at least one of said roller platens is in printing contact with said raised printing elements at all



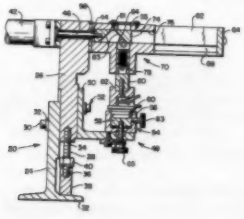
times during said printing cycle to prevent the remaining roller platens from immediately dropping off at an end of said line of raised printing elements.

4,423,680

AUTOMATIC CONTACT INK STAMPING APPARATUS

Alva J. Bishop, 2270 Weiler Dr., Zanesville, Ohio 43701

Filed Dec. 8, 1982, Ser. No. 447,888
Int. Cl.³ B41F *17/00, 17/24*
U.S. Cl. 101—318 3 Claims



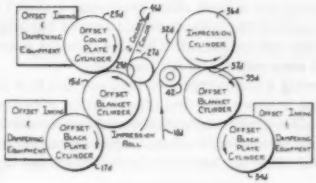
1. In an automatic contact ink stamping apparatus wherein the stamping platen travels between an ink supply station and a stamping station, horizontally spaced from one another, and then vertically at each of said stations to engage an ink supply pad at the ink supply station and a workpiece disposed at said stamping station; the combination of a first member slideably mounted on a frame for horizontal movement between each of said stations; a second member slideably mounted for horizontal travel within said first member and operatively connected to a piston rod having a horizontal forward and return stroke; a stamping platen including an upper elongated stem portion slideably mounted for vertical travel within said carriage member and normally biased into engagement with said second member for horizontal travel as a unit with said first and second members between said stations; means provided on said second member and said stem portion for converting horizontal travel of said second member independent of further travel by said first member into a downward force upon said stem portion to effect a vertically downward displacement of said stamping platen at each of said respective stations.

4,423,681

OFFSET LITHO CONVERSION FROM LETTERPRESS EQUIPMENT

Gary R. Smith, Overland Park, Kans., assignor to Smith RPM Corporation, Overland Park, Kans.

Division of Ser. No. 86,717, Oct. 22, 1979, and Ser. No. 12,567, Feb. 15, 1979, Pat. No. 4,286,519, and a continuation-in-part of Ser. No. 936,130, Aug. 23, 1978, abandoned. This application Feb. 11, 1982, Ser. No. 348,136
Int. Cl.³ B41L *17/12;* B41F *27/00*
U.S. Cl. 101—451 5 Claims



1. The process of permanently modifying conventional, continuous web letterpress newspaper printing equipment having cooperating first and second horizontally spaced sets of printing couples each comprising a letterpress impression and plate cylinder from letterpress printing equipment to continuous web offset equipment; said letterpress couples having a fixed spacing therebetween; said process including the steps of:

(a) permanently modifying the first letterpress plate cylinder to accept an offset plate and thereby function as a first offset plate cylinder having a first diameter; said first offset plate cylinder generally being positioned in said tower at the same location as said first letterpress plate cylinder was located;

(b) permanently modifying said first letterpress impression cylinder to accept an offset blanket and thereby function as a first offset blanket cylinder having a diameter generally equal to said first diameter; said first offset blanket cylinder generally being positioned in said tower at the same location as said first letterpress impression cylinder was located;

(c) permanently modifying said second letterpress plate cylinder to an offset plate cylinder to thereby function as a second offset plate cylinder having a diameter generally equal to said first diameter; said second offset plate cylinder generally being positioned in said tower at the same location as said second letterpress plate cylinder was located;

(d) permanently modifying said second letterpress impression cylinder to accept an offset blanket and thereby function as a second offset blanket cylinder having a diameter generally equal to said first diameter; said second offset blanket cylinder generally being positioned in said tower at the same location as said second letterpress impression cylinder was located;

(e) said first and second offset blanket cylinders being positioned within said tower frame such that they are generally horizontally opposed and spaced apart a distance less than said first diameter;

(f) said first and second offset plate cylinders being positioned in tangential contact with respective first and second offset blanket cylinders;

(g) positioning dampening and inking equipment in cooperation with said first offset plate cylinder;

(h) positioning dampening and inking equipment in cooperation with said second offset plate cylinder;

(i) permanently positioning a first offset impression cylinder in tangential contact with said first offset blanket cylinder at a first bight spaced from said first offset plate cylinder; said first offset cylinder being an added cylinder having a diameter substantially smaller than said first diameter and being positioned such that the axial center of said first

impression cylinder is between vertical planes passing through axial centers of said first and second offset plate cylinders;

(j) rotating said first offset impression cylinder such that the speed of the surfaces of said first offset impression cylinder and said first offset blanket cylinder at said first bight are substantially the same;

(k) permanently positioning a second offset impression cylinder in tangential contact with said second offset blanket cylinder at a second bight spaced from said second plate cylinder;

(l) rotating said second offset impression cylinder such that the speed of the surfaces of said second impression cylinder and said second offset blanket cylinder at said second bight are substantially the same; and

(m) reeving a continuous web between said first bight so as to pass between said first offset blanket cylinder and said first offset impression cylinder and said second bight so as to pass between said second impression cylinder and said second offset blanket cylinder at said second bight.

4,423,682

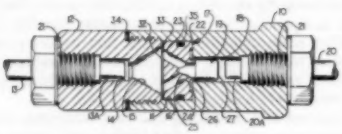
ONE-WAY EXPLOSIVE TRANSFER ASSEMBLY

Morry L. Schimmel, University City, Mo., assignor to McDonnell Douglas Corporation, St. Louis, Mo.

Filed Oct. 13, 1981, Ser. No. 311,079

Int. Cl.³ F42B *3/10*

U.S. Cl. 102—275.2 **9 Claims**



7. A one-way explosive transfer assembly comprising:

(a) a body having an internal chamber with first and second passages opening outwardly from said chamber;

(b) first detonating cord means in said first passage with a first explosive tip adjacent said chamber;

(c) second detonating cord means in said second passage with a second explosive tip spaced from said chamber;

(d) explosive initiating means in said chamber adjacent said second explosive tip; and

(e) heat transfer means for the hot gases of the explosion disposed in said chamber between said first explosive tip and said explosive initiating means, said heat transfer means including shock attenuating means positioned to block travel of fragments from said first explosive tip toward said explosive initiating means.

4,423,683

ENCLOSURE FOR A WARHEAD CASE

Frisco T. Telmo, King George, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 28, 1981, Ser. No. 334,753

Int. Cl.³ F42B *13/48*; B65D *25/00*

U.S. Cl. 102—481 **5 Claims**

1. An enclosure for an explosive to prevent inadvertent detonation thereof due to enclosure pressure buildup, comprising:

a hollow cylinder containing explosive material;

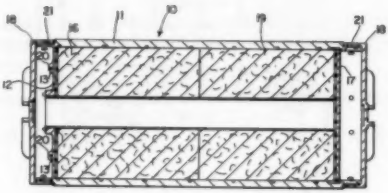
first circular plate means secured within one end of the hollow cylinder for closing it;

second circular plate means slidably disposed within the other end of the hollow cylinder for defining a temporary closure;

circumferentially spaced, radially directed apertures aligned between the second circular plate and hollow cylinder;

shear pins disposed in the aligned apertures for retaining the second circular plate within the hollow cylinder;

said shear pins adapted for failure at elevated pressure buildup in the contained explosive for allowing the second circular plate to be displaced in the axial direction from



the hollow cylinder other end for relieving said pressure buildup; and

outer container covers releasibly secured to the outer ends of the hollow cylinder and including a portion spaced outwardly of the circular plates means to define a space for allowing contained displacement of at least the second circular plate means due to pressure buildup in the hollow cylinder having sheared the shear pins.

4,423,684

TRACK LEVELLING AND TAMPING MACHINE WITH HYDRAULIC PRESSURE CONTROL SYSTEM

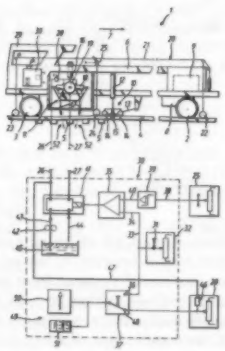
Josef Theurer, Vienna; Gernot Böck, Aschach, and Mihir Ganguly, Linz, all of Austria, assignors to Franz Plasser Bahnbaumaschinen-Industrie Gesellschaft m.b.H., Vienna, Austria

Filed Jan. 21, 1982, Ser. No. 341,292

Claims priority, application Austria, Feb. 2, 1981, 470/81

Int. Cl.³ E01B *27/17*

U.S. Cl. 104—7 R **4 Claims**



1. A mobile track leveling and tamping machine comprising the combination of a frame mounted for mobility on the track, vibratory and reciprocatory ballast tamping tools vertically adjustably mounted on the frame, a leveling reference system including a transmitter emitting an electrical control signal indicating a sensed track level, a hydraulically operated drive for reciprocating the tamping tools, the drive including a cylinder and a piston reciprocable therein, the piston dividing the cylinder into two chambers, and a hydraulic control system operating the drive, wherein the control system includes

(a) a receptacle containing hydraulic fluid,

(b) a three-way proportional electro-hydraulic valve having an outlet connected to one of the cylinder chambers and

another outlet connected to the hydraulic fluid containing receptacle,

(c) a hydraulic pressure regulator steplessly adjustable to a desired maximum tamping pressure exerted by reciprocation of the tamping tools,

(d) a differential element having two inputs and an output connected to the valve, and

(e) a threshold value stage connected between the transmitter and one of the differential element inputs, the other input being connected to the regulator and a third outlet of the valve being connected to the other cylinder chamber whereby the hydraulic pressure therein is controlled in response to the threshold value.

4,423,685

CRANE TROLLEY

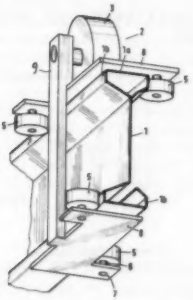
Wilhelm Kerckhoff, Herdecke, Fed. Rep. of Germany, assignor to Mannesmann Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

Filed Jul. 30, 1981, Ser. No. 288,482

Claims priority, application Fed. Rep. of Germany, Aug. 16, 1980, 3030929

Int. Cl.³ B61F *9/00*; B61B *13/04*; E05D *13/02*

U.S. Cl. 105—150 **10 Claims**



1. A crane trolley adapted to guide a carrying wheel along a beam, of the type having guide pulleys lying against upper and lower guide surfaces of said beam, the improvement comprising

(a) only two upper guiding pulleys arranged diagonally facing each other at the upper guide surface,

(b) only two lower guiding pulleys arranged diagonally facing each other at the lower guide surface and also placed diagonally from said upper guiding pulleys,

(c) said upper and lower guiding pulleys lying closely against said upper and lower guide surfaces, respectively,

(d) whereby imaginary connecting lines drawn between said four guiding pulleys would cross each other between said pulleys.

4,423,686

TABLE APPARATUS

Katumi Ueno, and Genichi Nishizaki, both of Tanashi, Japan, assignors to Citizen Watch Company Limited, Tokyo, Japan

Filed Dec. 23, 1981, Ser. No. 334,055

Int. Cl.³ A47B *37/00*

U.S. Cl. 108—20 **6 Claims**

1. A table apparatus with support blocks, comprising:

a guide way means extending between said support blocks;

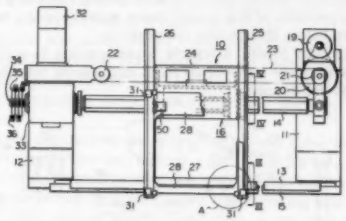
a non-circular guide shaft extending between said support blocks in parallel to said guide way means;

a lower slide slidably supported by said guide way means and said guide shaft, said lower slide being longitudinally movable along said guide way means and said guide shaft;

an upper slide slidably mounted on said lower slide;

drive means for rotating said guide shaft; and

a rotation transmission mechanism engaging with said guide shaft and slidable therealong, said rotation transmission



mechanism being drivably connected to said upper slide to move said upper slide in a direction perpendicular to an axis of said guide shaft in response to rotation of said guide shaft.

4,423,687

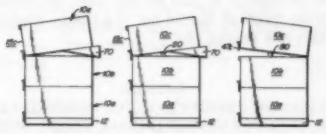
SAFE DEPOSIT BOX ANCHORING SYSTEM

Henry Serra, Novato, Calif., assignor to Hermann Associates, Inc., San Francisco, Calif.

Filed Nov. 18, 1980, Ser. No. 207,860

Int. Cl.³ E05G *1/08*; F16B *12/00*; B65D *21/00*

U.S. Cl. 109—50 **7 Claims**



1. A method of separating an upper safe deposit box nest that is registered over a lower safe deposit box nest, said upper nest being fitted with first and second lower retainer brackets proximate a lower edge of a rear wall thereof at a predetermined spacing, said lower nest being fitted with first and second upper retainer brackets proximate an upper edge of a rear wall thereof at the same predetermined spacing, said upper and lower nests being horizontally stabilized with respect to one another by first and second tabs in the passageways defined by said registered first upper and lower retainer brackets and said second upper and lower retainer brackets, said method comprising:

inserting a wedge between said nests at the front thereof to cause said upper nest to pivot about said lower edge of said rear wall;

inserting a roller into the space between said upper and lower nests at a position generally approximately halfway between the front and rear thereof;

pivoting said upper nest about the fulcrum defined by said roller to lift said first and second tabs completely above the upper surface of said lower nest; and

moving said upper nest toward the front of said lower nest to effect the removal of said upper nest.

4,423,688

BRUSH FEEDER FOR DISPOSAL OF THERMOPLASTIC WASTE IN A FLUIDIZED BED REACTOR

Hong-Hsiang Kuo, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 21, 1982, Ser. No. 370,456

Int. Cl.³ F23G *5/00*

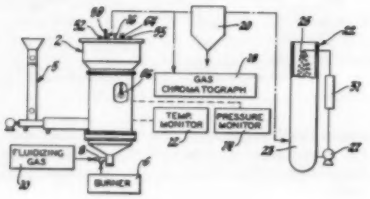
U.S. Cl. 110—245 **3 Claims**

1. Means for feeding particles having a meltable polymer

constituent into a fluidized bed reactor operating at an elevated temperature substantially above the temperature at which the particles fuse with one another, said reactor being used to thermally degrade said particles the feeder means comprising

a source of said polymer particles remote from said reactor, the particles of said source being maintained at a temperature below their fusion temperature;

a feed tube having a hollow barrel portion in which said particles are transported from said source into the fluidized bed reactor;



means for flowing pressurized gas in said barrel to agitate the scrap particles therein, to maintain them at a temperature below their fusion temperature, and to prevent hot gases from the reactor from substantially penetrating the feed tube;

an auger feed within said feed tube comprising a shaft carrying a plurality of helically arrayed flexible bristles; and

means for rotating said auger feed such that the scrap particles are carried by said bristles from the particle source into the fluidized reactor bed in a steady, unagglomerated stream at a desired rate.

4,423,689

METHOD OF PRODUCING PULVERIZED COAL AS FUEL FOR PULVERIZED-COAL PILOT BURNERS

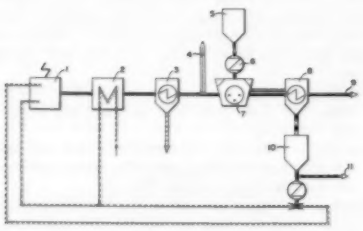
Johannes Merz; Gunter v. d. Kammer, and Ulrich Rau, all of Gummersbach, Fed. Rep. of Germany, assignors to L. & C. Steinmüller GmbH, Gummersbach, Fed. Rep. of Germany

Filed Mar. 23, 1982, Ser. No. 361,527

Claims priority, application Fed. Rep. of Germany, Mar. 25, 1981, 3111674

Int. Cl.³ F23D *1/00*; **F23K** *5/00*

U.S. Cl. 110—347 **1 Claim**



1. A method of providing pulverized coal for use as fuel for pulverized coal pilot burners in a power plant having main furnaces and at least one auxiliary steam generator which also utilizes pulverized coal, the method comprising the following steps in combination:

storing raw coal in a bunker;

pulverizing the raw coal to produce finely divided fuel particles particularly suitable for burning in pilot burners;

filtering ash from the flue gases of the auxiliary steam generator;

mixing the flue gases with intake air;

entraining the finely divided fuel particles in the mixture of flue gases while the temperature of the mixture is still substantially higher than the acid dew point of the flue gas to both convey the finely divided fuel from the pulverizer and to dry the finely divided fuel particles;

filtering the finely divided fuel from the mixture of flue gas and air to provide a mass of dry finely divided fuel particles;

exhausting the mixture flue gas and air;

storing the finely divided fuel particles in a storage bunker;

distributing the stored, finely divided fuel particles to the pulverized coal pilot burners of the main furnaces as needed, and

entraining a portion of the finely divided fuel particles in a stream of air, preheated by the flue gases of the auxiliary generator, and firing the auxiliary generator with the finely divided fuel particles.

4,423,690

SEWING MACHINE FOR PRODUCING CURVED EDGE PARALLEL SEAMS

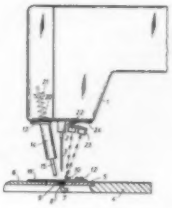
Erich Willenbacher, Kaiserlautern, and Fritz Jehle, Enkenbach-Alsenborn, both of Fed. Rep. of Germany, assignors to Pfaff Industriemaschinen GmbH, Fed. Rep. of Germany

Filed Dec. 8, 1981, Ser. No. 328,504

Claims priority, application Fed. Rep. of Germany, Dec. 20, 1980, 3048198

Int. Cl.³ D05B *97/00, 35/10*

U.S. Cl. 112—262.3 **12 Claims**



1. A mechanism in a sewing machine having a needle reciprocating in a needle path spaced from an edge guide for guiding an edge of a workpiece, for producing a curved edge parallel seam in the workpiece comprising:

workpiece feed means for feeding a workpiece past the needle path, with its edge guided along the edge guide;

edge scanning means for sensing when the workpiece edge moves away from the edge guide which is indicative of the presence of a curved workpiece edge area;

workpiece pressure means for applying pressure, when activated, to a point on the workpiece spaced laterally of the needle path to cause rotation of the workpiece about said point during feed of the workpiece by said workpiece feed means; and

a control circuit connected to said workpiece pressure means and said edge scanning means for intermittently activating said workpiece pressure means a plurality of times when said edge scanning means senses the presence of a curved workpiece edge area.

12. A method of automatically producing a curved edge parallel seam in a workpiece using a sewing machine having a reciprocating needle and edge guide comprising:

feeding a workpiece with its edge along the edge guide;

sensing the movement of the workpiece edge away from the edge guide which is indicative of the presence of a curved edge area; and

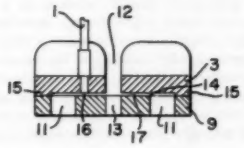
applying an intermittent pressure to a point on the workpiece spaced from the needle during the feeding of the workpiece to cause a rotation of the workpiece about the point only when the workpiece edge is sensed as moving away from the edge guide.

4,423,691

MATERIAL SENSING MEANS FOR SEWING MACHINES

Konstantin Schwaab, Aichwald, Fed. Re,. of Germany, assignor to Union Special GmbH, Stuttgart, Fed. Rep. of Germany

Filed Nov. 1, 1982, Ser. No. 438,064
Claims priority, application Fed. Rep. of Germany, Nov. 6, 1981, 3144127
Int. Cl.³ D05B *69/00*
U.S. Cl. 112—272 4 Claims



1. A device adapted to monitor the passage of a workpiece edge beneath a sewing machine presser foot assembly, said device comprising:

a presser foot sole means forming a part of said presser foot assembly, said presser foot sole means having a longitudinally extending bottom channel with a vertically elevated top surface and two depending side edge portions;

fiber optic means capable of transmitting light and having one end thereof arranged flush with the top surface of said channel and opposite a reflecting surface; and

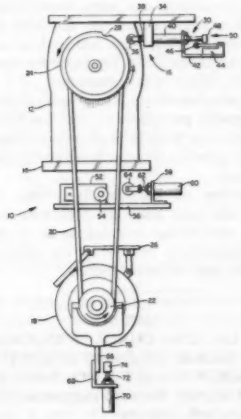
operative means connected to the other end of said fiber optic means, said operative means being responsive to the interruption and restoration of light caused by the ends of a workpiece passing between the end of the fiber optic means and said reflective surface, said operative means being capable of producing a signal indicative of such workpiece passage.

4,423,692

PNEUMATIC NEEDLE POSITIONER

James C. Kelly, and Fredrick W. Garnett, both of Starkville, Miss., assignors to Starkville Tool and Die Company, Starkville, Miss.

Filed Jul. 16, 1981, Ser. No. 283,809
Int. Cl.³ D05B *69/22*
U.S. Cl. 112—274 25 Claims



1. A pneumatically controlled needle positioner for positioning a needle in relation to a workpiece comprising:

(a) means for sensing a position of a sewing or stitching machine handwheel wherein said handwheel is calibrated in relation to the position of a machine needle in the sewing or stitching cycle;

(b) a pneumatically operated needle positioning motor disposed intermediate a sewing or stitching machine motor drive pulley and said machine handwheel;

(c) a needle positioning motor pulley disposed on said pneumatically operated needle positioning motor and adjacently spaced to one side of a drive belt connecting said sewing machine drive pulley and said machine handwheel;

(d) means disposed on the other side of said drive belt for biasing said drive belt around a portion of the circumference of said needle positioning motor pulley; and

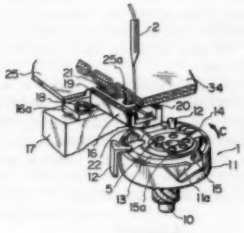
(e) control means for activating and deactivating said pneumatically operated needle positioning motor, said means for sensing the position of said machine handwheel and said means for biasing said drive belt against said needle positioning motor pulley.

4,423,693

FEED DOG STRUCTURE OF SEWING MACHINES

Susumu Hanyu, Hachioji; Mikio Koike, Oume, and Kazumasa Hara, Hino, all of Japan, assignors to Janome Sewing Machine Co. Ltd., Tokyo, Japan

Filed Jun. 19, 1981, Ser. No. 275,237
Claims priority, application Japan, Jun. 27, 1980, 55-89371
Int. Cl.³ D05B *57/14*
U.S. Cl. 112—324 3 Claims



1. A sewing machine having a vertically reciprocative and laterally swingable needle for sewing, said needle carrying a first thread, said machine comprising:

(a) a rotatable loop taker, said loop taker being adapted to catch a thread loop during a sychronous rotation thereof with the vertical reciprocating movement of said needle, said loop taker being rotatable in a horizontal plane with respect to said needle;

(b) a bobbin member mounted within said loop taker and carrying a second thread; said second thread being adapted to form a lock stitch with said first thread when said loop taker catches a thread loop of said first thread;

(c) a feed dog member, said feed dog member including a plurality of feed dog elements, said feed dog elements being vertically and horizontally movable synchronously with said swingable needle so as to allow the fabric to be moved relative to said needle; and

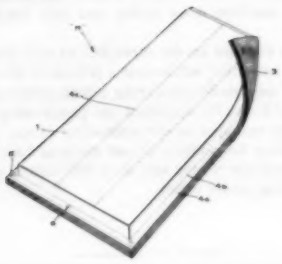
(d) a thread guide positioned on a certain one of said plurality of feed dog elements, said thread guide being adapted to guide said second thread away from a vertical reciprocating path of said swingable needle to the left side thereof if viewed from the position of the machine operator each time said feed dog elements are vertically moved.

4,423,694

PAD FOR SETTING CONCRETE

Bertrand Senneville, 20 du Rhone, app. 415, St-Lambert, Quebec, Canada J4S 1X4

Filed Oct. 27, 1982, Ser. No. 437,120
Claims priority, application Canada, Nov. 6, 1981, 389604
Int. Cl.³ B32B 7/08
U.S. Cl. 112—405 11 Claims



1. In a pad for concrete for appreciably reducing the setting time of concrete, comprising an essentially water and air tight flexible cover enclosing a heat insulating cushion resting put directly over a lower part intended to be laid directly in contact with the surface of concrete, the improvement wherein the said lower part is made up of ribbons weaved together in the form of a network in such a manner as to have a good mechanical resistance to wear by friction, and so as to create a zone between the heat insulating cushion and the surface of the concrete capable of allowing the excess water oozing through the concrete surface to flow only slowly away thereby avoiding the need of water from an outside source, allowing also the heat resulting from the setting reaction to accumulate inside the interstices of the said network thus may accelerate the setting of the concrete.

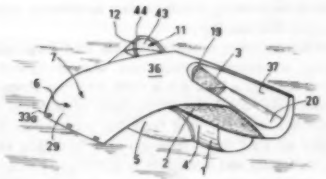
4. A pad for concrete according to claim 1, wherein the water and air tight flexible cover, the heat insulating cushion and the lower part have about the same surface size and are bound to each other by seams of threads sown completely through the cover, the cushion and the lower part along their common periphery.

4,423,695

FLOATABLE AND UNSINKABLE NAUTICAL CRAFT

Jacques Rougerie, Paris, France, assignor to Oceanova, Paris, France

Filed Aug. 6, 1980, Ser. No. 175,884
Claims priority, application France, Aug. 7, 1979, 79 20156
Int. Cl.³ B63B 35/72
U.S. Cl. 114—61 13 Claims



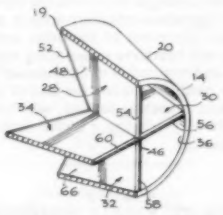
1. A floatable, unsinkable and nautical observation craft comprising in combination a hull having a keel portion below the water line, an upper portion above the water line and longitudinal sides, separate stabilization and buoyancy means connected rigidly to the upper portion of the hull and projecting laterally from both longitudinal sides of the hull, a passenger's compartment extending longitudinally in the hull at least partially below the water line in the keel portion thereof, propulsion means at at rear of the craft, passenger access means in the upper portion of the hull, a pilot station at the front of the upper portion of the hull, said passenger compartment having at least one longitudinally extending observation window in each longitudinal side of the hull, said observation window being dome-shaped and defining a laterally projecing part of the keel portion of the hull of sufficient length that several passengers can simultaneously have an under-water view through said dome-shaped window in a substantially horizontal direction and in a downwards direction, and means providing surface vision and under-water vision for a pilot in said pilot station said stabilization and buoyancy means comprising a transversely extending high resistance supporting structure extending to both sides of the hull and extending downwardly floats at opposite sides of said supporting structure and spaced laterally from said passenger compartment.

4,423,696

IMPROVED BOAT THRUSTER SYSTEM INCLUDING SWIRL REDUCING VANES

Charles M. Aker, 2006 Barranca, Newport Beach, Calif. 92660

Filed Apr. 22, 1981, Ser. No. 256,528
Int. Cl.³ B63H 25/46
U.S. Cl. 114—148 7 Claims



1. In combination with a boat having a hull, a thruster system mounted in said hull including an assembly of fixedly mounted substantially cylindrical pipe sections, said assembly having an inlet opening through said hull proximate to the bottom thereof and first and second outlets opening through opposite sides of said hull, and pump means located proximate to said inlet for drawing water into said inlet and selectively discharging water through said first and/or second outlets, means for enhancing the thrust produced by water discharged from said outlets, said means comprising:

a first plurality of substantially planar vanes fixedly mounted in said pipe assembly proximate to said first outlet, each vane being oriented so as to define a plane extending substantially parallel to the primary flow path defined by the pipe assembly thereat; and

a second plurality of substantially planar vanes fixedly mounted in said pipe assembly proximate to said second outlet, each vane being oriented so as to define a plane extending substantially parallel to the primary flow path defined by the pipe assembly thereat.

4,423,697

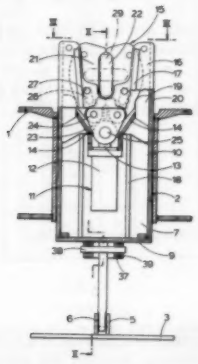
DEVICE FOR LOCKING CHAIN, WIRE, CABLE, OR THE LIKE TO A STATIONARY STRUCTURE, PARTICULARLY A BOAT DECK

Norvald Royset, Hareid, Norway, assignor to Ulstein Trading Ltd. A/S, Ulsteinvik, Norway

Filed May 20, 1981, Ser. No. 265,285
Claims priority, application Norway, Jun. 12, 1980, 801747
Int. Cl.³ B63B 21/08
U.S. Cl. 114—199 7 Claims

7. A cable locking device for locking a cable, chain, wire or

tow particularly but not exclusively for securing an anchor chain or/and pendant wire to an offshore vessel, characterized in that the device comprises an oblong lock housing in which there is arranged a fluid activated jack means, the jack cylinder being rigidly connected with the housing and the jack piston rod being operationally connected with a locking jaw means having a pair of locking jaws adapted for moving against/from



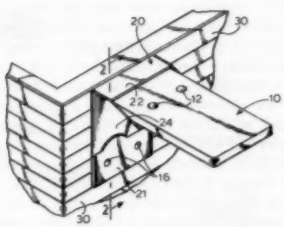
one another by retracting/extending the piston rod into/from the jack cylinder, respectively, the housing being adapted to be arranged extendable/retractable in a correspondingly shaped well in a stationary structure, and characterized in that in the lock housing a fluid activated jack lifting means is provided with jack cylinder(s) connected with the stationary structure and the piston rod(s) connected with the lock housing.

4,423,698

DIVING BOARD AND BRACKET ASSEMBLY FOR A BOAT

Nicholas Peluso, 210 Belvedere Dr., Massapequa Park, N.Y. 11762

Filed Oct. 30, 1981, Ser. No. 316,565
Int. Cl.³ B63B *17/00*
U.S. Cl. 114—343 **4 Claims**



1. A diving board and bracket assembly for a boat comprising:

a generally rectangular diving board having at least one mounting hole extending vertically therethrough adjacent to one end thereof;

a bracket having a generally rectangular slot for receipt therein of an end of said diving board, said bracket having a pair of spaced-apart, generally upstanding, parallel sidewalls, and a pair of generally horizontally disposed, spaced-apart, parallel, upper and lower support walls joined to and extending between said sidewalls to define, in cooperation therewith, said rectangular slot, as well as a back wall to which at least one of said sidewalls and said support walls is secured, said upper support wall having a width which is less than said lower support wall, the latter of which is provided with at least one mounting hole vertically extending therethrough and disposed for alignment with the hole in said diving board when said diving board is inserted into said rectangular slot;

means for detachably securing said board to said bracket so as to allow relatively quick securement and detachment of said board to said bracket; and

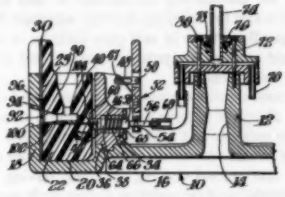
means for securing said bracket to a boat in a relatively permanent manner.

4,423,699

CENTRIFUGE ROTOR APPARATUS FOR PREPARING PARTICLE SPREADS

John W. Boeckel, Hamden; Vernon C. Rohde, Newtown, both of Conn., and John R. Wells, Los Angeles, Calif., assignors to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Filed Feb. 28, 1979, Ser. No. 15,911
Int. Cl.³ B05C *11/08*
U.S. Cl. 118—52 **11 Claims**



1. A centrifuge rotor for depositing suspended particles of a sample carried in a supernatant onto a deposition surface comprising:

a region in said rotor adapted to receive said surface therein;

a removable chamber adapted to hold said sample, said chamber being positionable in said region, said chamber having an inlet orifice for introducing said sample into said chamber and an outlet orifice contiguous to said surface through which the particles in said sample and the supernatant may pass radially outwardly of the rotor toward said surface; and,

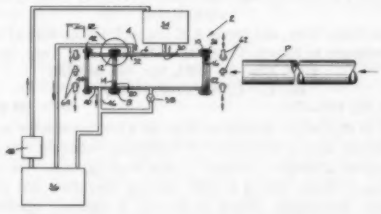
a conduit extending through a portion of said chamber for removing the supernatant from said surface in a radially inwardly direction of said rotor.

4,423,700

APPARATUS FOR COATING PLASTIC PIPE

Minh D. Nguyen, Englewood, and Charles Lostak, Littleton, both of Colo., assignors to J-M Manufacturing Company, Inc., Stockton, Calif.

Filed Jan. 27, 1982, Ser. No. 343,078
Int. Cl.³ B05C *3/10*
U.S. Cl. 118—404 **1 Claim**



1. In an apparatus for coating a series of axially aligned rigid pipe sections with an adhesive coating or the like having a first coating chamber and a second coating chamber adjacent said

first coating chamber for containing a liquid coating material, said first coating chamber having at least a first wall and a second wall, positioned opposed and generally upright, and said second chamber having said second wall and a third wall, each of said walls having a circular opening of sufficient diameter to permit said pipe sections to pass therethrough, wherein the improvement comprises:

(a) first, second, and third flexible sealing means sealingly attached across an opening with an inner diameter defining an inner edge which flexibly conforms to the outside surface of said pipe section when said pipe sections are guided through said circular openings;

(b) roller means adjustably mounted approximate said first and third walls for supporting said pipe sections in a predetermined positional relationship with said openings, whereby said seal means and said roller means co-operatively associate in combination to maintain the pipe section in a predetermined position within the coating chambers and cause said pipe section to be submerged in said adhesive coating material for a predetermined dwell time period;

(c) means for maintaining an amount of said liquid coating material in said first coating chamber adequate to completely submerge all portions of said pipe sections in said chamber when said sections are passing through said coating chambers via said openings;

(d) said second chamber positioned adjacent and after said first coating chamber relative to the direction of movement of said pipe sections and sealingly engaging said first coating chamber at said second upright wall and over said opening therein, said second coating chamber, having at least said third upright wall opposite said first wall permitting said pipe sections to pass therethrough and out of said second chamber;

(e) said third flexible seal means sealingly engaging said third wall across an opening with an inner diameter defining an inner edge which flexibly conforms to the outer surface of said pipe sections; and,

(f) said second chamber including a drain means for removing any excess coating material from said second chamber, said drain means being operatively connected via forward conduits with a mix tank and a make-up tank means, each tank operatively connected to a pumping means for recirculating excess coating material out from said second chamber and back into said first chamber, whereby the coating material is evenly applied to the outer wall of the pipe for uniformity of coating.

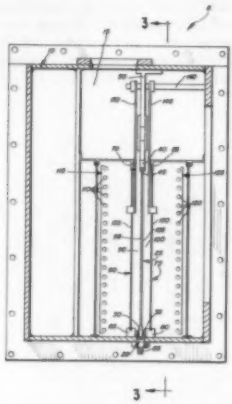
4,423,701

GLOW DISCHARGE DEPOSITION APPARATUS INCLUDING A NON-HORIZONTALLY DISPOSED CATHODE

Prem Nath, Troy, and David A. Gattuso, Pontiac, both of Mich., assignors to Energy Conversion Devices, Inc., Troy, Mich.

Filed Mar. 29, 1982, Ser. No. 363,256
Int. Cl.³ C23C *13/08*; H01L *45/00*
U.S. Cl. 118—715 **27 Claims**

1. In deposition apparatus wherein a semiconductor layer is deposited upon a substrate; the apparatus including a housing; a vacuum chamber provided by said housing; means for developing a plasma region in said vacuum chamber; said plasma region developing means including: a cathode operatively disposed within said chamber; at least one substrate operatively disposed within said chamber; means for introducing an amorphous layer-producing material into said plasma region; a semiconductor layer-producing material; and means for heating said substrate; the improvement comprising, in combination:



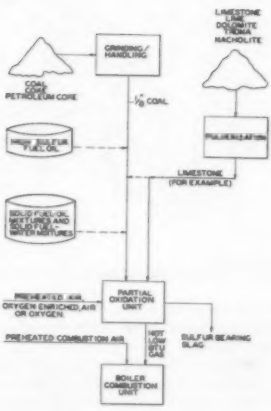
means for supporting said cathode in a non-horizontal plane within said housing, whereby the amount of deposition debris collected on the cathode is minimized.

4,423,702

METHOD FOR DESULFURIZATION, DENITRIFACTION, AND OXIDATION OF CARBONACEOUS FUELS

Robert A. Ashworth, 6367 24th St., S., St. Petersburg, Fla. 33712; Antonio A. Padilla, 15803 Deep Creek La., Tampa, Fla. 33624; Larry A. Rodriguez, 7452 18th St., NE., St. Petersburg, Fla. 33702; Ned B. Spake, 2711 Summerfield Dr., Winter Park, Fla. 32792, and Warnie L. Sage, 6274 S. Jackson St., Littleton, Colo. 80121

Continuation-in-part of Ser. No. 341,768, Jan. 22, 1981, Pat. No. 4,395,975. This application Mar. 9, 1983, Ser. No. 473,597
Int. Cl.³ C10J *1/00*
U.S. Cl. 122—5 **16 Claims**



1. A method for desulfurization, denitrification and oxidation of carbonaceous fuels, said method comprising the steps of:

a. introducing said carbonaceous fuel into a first stage partial

oxidation unit containing molten slag at a temperature of about 2,200° F.–2,600° F.;

b. simultaneously introducing oxygen-containing gas into said first unit, whereby partial oxidation of said carbonaceous fuel occurs to generate a combustible gas and at least about 50–99%, by weight, of the sulfur content of the carbonaceous fuel is chemically captured in said slag, fuel nitrogen being essentially completely converted to diatomic nitrogen;

c. transferring said combustible gas along a substantially horizontal path to a second stage oxidation unit for combustion; and

d. removing said sulfur containing slag for disposal, said slag remaining in a reducing atmosphere until quenched.

4,423,703

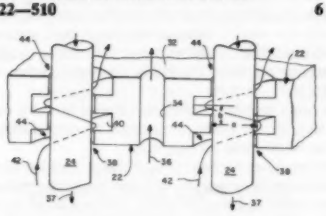
STEAM GENERATOR OR LIKE APPARATUS INCLUDING SELF-CLEANING HEATING ELEMENT SUPPORT ARRANGEMENT

Walter H. Esselman, Los Altos, and Stanley J. Green, Palo Alto, both of Calif., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Mar. 9, 1981, Ser. No. 241,565

Int. Cl.³ F28F *13/08, 1/00*

U.S. Cl. 122—510 **6 Claims**



1. A steam generating apparatus comprising: a housing including an inner chamber and inlet and outlet means into and out of said chamber, respectively; a plurality of support plates disposed within said chamber in spaced relationship to one another between said inlet and outlet means, each of said support plates including a plurality of openings and a helical groove extending the length of and located in the side wall defining each of said openings; a plurality of elongated tubular members, equal in number to said plurality of openings, disposed within said chamber and extending through associated openings in said support plates, each of the side walls of said openings and the outer surface of its associated tubular member cooperating with one another so that the only passageway for water therebetween is through its helical groove; means for supplying a continuous stream of hot fluid through each of said tubes whereby the latter serve as heating elements; and means for causing water having a certain amount of dissolved solid material therein to pass into said chamber through said inlet means whereby to be converted to steam by said heating elements such that the dissolved solid material from the converted steam accumulates within said chamber and across said plates toward said outlet means, said grooves being such that at least some of said water and/or converted steam passes through and along each of said helical grooves with sufficient force to clean the crevices at the junctures of said tubular members and support plates of any of said solid material.

4,423,704

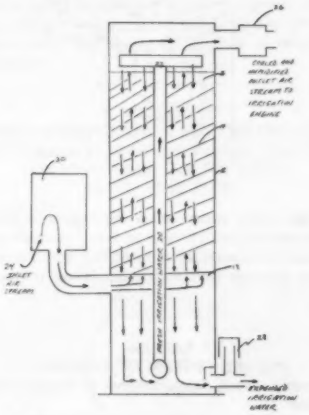
METHOD FOR IMPROVING EFFICIENCY OF AN INTERNAL COMBUSTION IRRIGATION ENGINE

James G. Persinger, P.O. Box 477, 1108 Industrial St., Hugoton, Kans. 67951

Filed Sep. 16, 1981, Ser. No. 302,495

Int. Cl.³ F02M *25/04*

U.S. Cl. 123—25 R **9 Claims**



1. A method for improving efficiency of an internal combustion irrigation engine by cooling and humidifying an inlet air stream to the engine, the method comprising the steps of:

channelling an inlet air stream to the engine through a single pass air cooler at a flow rate of between about 200 cubic feet per minute and about 5000 cubic feet per minute, said air cooler being a counter-current flow packed cooling tower utilizing irrigation water as cooling means;

directly contacting said inlet air stream with irrigation water in said air cooler to bring the temperature of said air stream within a range of between about 55° F. and about 75° F. and to bring the relative humidity of said air stream within a range of from about 90% to about 100%;

mixing the cooled and humidified inlet air stream with fuel; and

directing the resultant gaseous mixture to a combustion chamber of said internal combustion irrigation engine for ignition.

4,423,705

COOLING SYSTEM FOR LIQUID-COOLED INTERNAL COMBUSTION ENGINES

Yasuyuki Morita; Katsuhiko Yokooku; Hideo Shiraishi, and Masahiko Matsuura, all of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima, Japan

Filed Mar. 25, 1982, Ser. No. 361,823

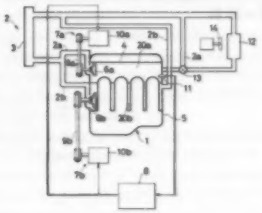
Claims priority, application Japan, Mar. 26, 1981, 56-44985; Mar. 27, 1981, 56-45739

Int. Cl.³ F01P *5/12*

U.S. Cl. 123—41.02 **8 Claims**

1. A cooling system for a liquid-cooled internal combustion engine including a high temperature portion and a low temperature portion, said cooling system comprising first cooling liquid passage means having first cooling liquid jacket means provided in the high temperature portion of the engine for passing cooling liquid therethrough, second cooling liquid passage means have second cooling liquid jacket means provided in the low temperature portion of the engine for passing cooling liquid therethrough, cooling liquid pump means for circulating the cooling liquid through said first and second passage means and said first and second jacket means, driving

means for driving said pump means at a speed independent of engine speed, engine temperature sensing means for sensing engine temperature and producing an engine temperature signal, control means adapted to receive the engine temperature signal and control said driving means to decrease the



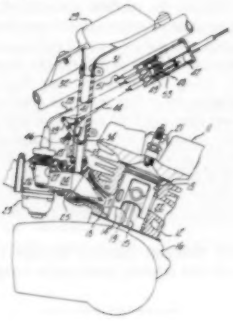
speed of said pump means when the engine temperature is below a first predetermined value so that the overall amount of cooling liquid circulation is decreased and the cooling liquid is passed only through said high temperature portion of the engine.

4,423,706

INTAKE SYSTEM OF ENGINES

Hiroki Onodera, Iwata, Japan, assignor to Yamaha Motor Co., Ltd., Japan

Filed Jun. 25, 1981, Ser. No. 277,326
Claims priority, application Japan, Jun. 28, 1980, 55-88068
Int. Cl.³ F02M 35/00
U.S. Cl. 123—52 M 10 Claims



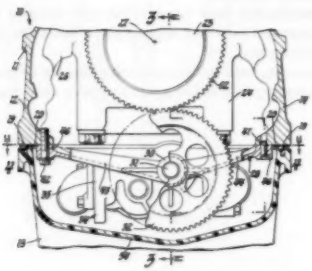
1. An induction system for a variable volume chamber of an internal combustion engine having an induction passage for supplying intake charge to said chamber, a throttle valve for controlling the flow through said induction passage, a plenum chamber, means for communicating said plenum chamber with said induction passage only between said throttle valve and said chamber, said communicating means and said plenum chamber providing for flow of a portion of said intake charge from said induction passage into said plenum chamber during a portion of the engine operating cycle and providing flow from said plenum chamber to said induction passage of at least a part of said portion of said intake charge during at least a part of the induction cycle of said engine for supplementing the flow in said induction passage, and means for precluding communication of said plenum chamber with said induction passage when said throttle valve is in its idle position comprising a control valve means operatively connected with said throttle valve and movable from a closed position when said throttle valve is in its idle position to an opened position when said throttle valve is moved from its idle position.

4,423,707

ENGINE WITH INTERNAL CRANKCASE BRIDGE HAVING INTEGRAL OIL PUMP AND DRIVE HOUSING

Tanas M. Sibon, Ann Arbor, and Jerry W. Ransom, Livonia, both of Mich.

Filed Sep. 24, 1982, Ser. No. 422,576
Int. Cl.³ F02F 7/00; F02B 77/00
U.S. Cl. 123—196 R 3 Claims



1. The combination of an engine having a crankcase housing with a pair of longitudinally extending oppositely spaced side walls having interconnected ends, said walls partially defining between them a crankcase cavity in which a crankshaft is supported for rotation on a longitudinal axis, said side walls extending substantially below said axis and being adapted to support an oil pan, a driving member on said crankshaft for driving an oil pump, and the improvement comprising

a crankcase bridge member extending laterally across the crankcase cavity beneath the crankshaft and secured to both said side walls between their ends to structurally interconnect them for stiffening and limiting vibrations thereof,

said bridge member including integral housing means containing an oil pump connected to draw lubricating oil from within said oil pan, and

a drive member carried by said bridge member and directly connected to drive said oil pump, said drive member being positioned closely adjacent to said crankshaft and drivably connecting with said crankshaft carried driving member for driving said oil pump upon rotation of said crankshaft,

whereby an engine having a compact crankcase bridge and oil pump housing and drive assembly is provided.

4,423,708

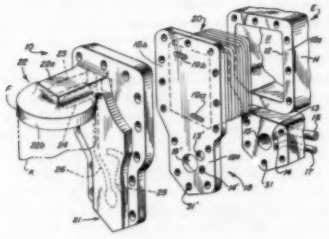
LIQUID COOLING UNIT FOR AN INTERNAL COMBUSTION ENGINE

Roger D. Sweetland, Columbus, Ind., assignor to Cummins Engine Company, Inc., Columbus, Ind.

Filed Dec. 31, 1981, Ser. No. 336,286
Int. Cl.³ F02M 1/00
U.S. Cl. 123—196 AB 7 Claims

1. A removable cooling unit for mounting on the housing of an internal combustion engine, the housing having a first interior portion provided with an external inlet and an external outlet and through which a first liquid circulates and a second interior portion through which a second liquid circulates, the second interior portion being provided with a relatively large access opening, said unit comprising a removable base section for overlying the access opening and being sealingly secured to surface portions circumjacent the access opening, said base section being provided with a first set of ports adapted to register with the inlet and outlet of the first interior portion and a second set of ports spaced from said first ports; a heat exchange section carried on one side of said base section and protruding therefrom, said heat exchange section and said base section being of unitary construction and said heat exchange

section being adapted to project through the access opening into the second interior portion whereby the exterior of said heat exchange section is positioned independently of the housing surfaces defining said access and is contacted only by the circulating second liquid, the interior of said heat exchange section being in communication with said second set of ports, the first liquid being adapted to circulate through the interior



of said heat exchange section; and a cover section sealingly secured to a second side of said base section, said cover section having the surface thereof adjacent said base section concealed and provided with a plurality of independent passages, a first of said passages interconnecting a port of the first set with a port of the second set and a second of said passages interconnecting another port of the first set with another port of the second set.

4,423,709

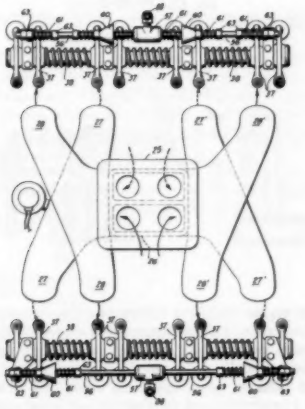
METHOD AND APPARATUS FOR ECONOMIZING FUEL CONSUMPTION IN OPERATING A MULTICYLINDER INTERNAL COMBUSTION ENGINE

Francisco A. Arrieta, Rio Piedras, P.R.

Continuation of Ser. No. 856,629, Dec. 2, 1977, abandoned, which is a continuation-in-part of Ser. No. 584,179, Jun. 5, 1975, abandoned. This application Mar. 3, 1980, Ser. No. 126,184

Int. Cl.³ F02B *77/00*

U.S. Cl. 123—198 F **30 Claims**



1. A method of economizing fuel consumption in operating an internal combustion engine having first and second groups of combustion chambers, respectively having reciprocating pistons therein, the first group communicating through intake valves with a first intake manifold and the second group communicating through intake valves with a second intake manifold separate from said first manifold, the steps of consecutively introducing combustible fuel through the manifolds into each combustion chamber of the groups for ignition in the chambers to provide relatively high power availability for periods of relatively high power demand, and of consecutively introducing combustible fuel for ignition into only the first manifold for combustion in the chamber of the first group while continuously holding open the intake valves of the second group and venting the second manifold to ambient air for thereby venting the combustion chambers of the second group to ambient atmosphere so that they do not build up appreciable compression in the chambers of the second group, while continuing the reciprocating of all of said pistons to provide relatively low power availability for periods of relatively low power demand.

4,423,710

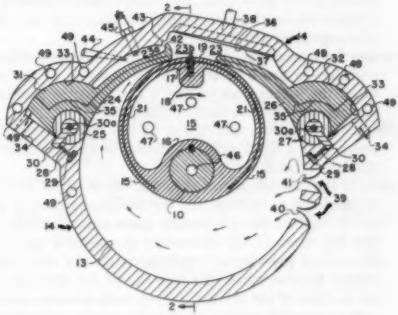
HIGH COMPRESSION ROTARY ENGINE

Robert H. Williams, Rt. 2, Box 44, Bandera, Tex. 78003

Filed Nov. 9, 1981, Ser. No. 319,731

Int. Cl.³ F02B *53/00*

U.S. Cl. 123—228 **2 Claims**



1. A rotary internal combustion engine having the four-phase cycle of intake, compression, expansion and exhaust with each revolution of the engine shaft, the engine comprising:

a stator with a cylinder bore sealed between parallel end walls;

an engine shaft journaled in bearings in the end walls, concentric with the cylinder bore;

an eccentric annular rotary piston fixed to the engine shaft, the piston substantially coextensive with the end walls, its head fitted with a spring-biased wiper vane in a transverse slot to yieldably sweep the cylinder to push air ahead of it throughout a compression stroke;

a combustion-expansion chamber comprising a shallow arcuate cavity in the upper part of the stator centered near 12:00 o'clock, adjacent to the path of the piston head, communicating with the cylinder space;

a first abutment having a first end pivotally secured to the stator near 10:00 o'clock and a second end projecting clockwise and free to swing vertically in the cylinder space, the abutment long enough to make tangential sealing engagement with the piston in all positions of the piston, the under side of the abutment arcuate on a radius not shorter than that of the cylinder;

a second abutment having a first end pivotally secured to the stator near 2:00 o'clock and a second end projecting counter-clockwise in the cylinder space, the abutment free to swing vertically in the cylinder and long enough to make tangential sealing engagement with the piston in all positions of the piston, the under side of the abutment arcuate on a radius short enough to insure that the piston head, while passing under the abutment, not lift the free end of the abutment off the face of the piston;

both first and second abutments making sliding sealing engagement with both end walls and with the piston to enclose the combustion chamber above them to insure

that during combustion, the expanding gases bear down on the three elements to cause the eccentric piston head to rotate, turning the engine shaft;

each abutment spring biased downward toward the piston by a spring outside the engine wall, the spring based on a lug cast on the wall and bearing upward against a lever which lever is keyed to an extension of the abutment pivot through the end wall, to which pivot the abutment is also fixed;

spring tension on the first abutment adjusted to allow the free end of that abutment to be forced upward off the face of the piston by compressed air in front of the piston head promptly after an exhaust valve opens inside the combustion-expansion chamber, the upward lifted abutment end constituting an inlet port to allow air to be compressed directly into the combustion chamber;

at least one inlet port fitted with at least one one-way inlet valve to admit air to the cylinder;

exhaust means comprising at least one poppet valve positioned in the engine head to open into the expansion chamber at the end of a power stroke to allow the engine to be scavenged of spent gases, the valve timed to close in time to allow the combustion chamber to catch the next charge of compressed air;

means for introducing a charge of fuel into the combustion chamber in timed relation to the position of the piston head, the means constituting a fuel injector installed to project into the combustion chamber;

means for firing the fuel charge as it is injected, the means comprising a spark plug, positioned in close proximity to the fuel injector;

each of the two abutments enlarged on its upper face at its pivoted end to reshape the combustion-expansion chamber to confine the combustion gases more centrally over the free ends of the abutments to partially reduce the downward pressure of combustion on the abutment, to reduce friction where the free end of the abutment rides on the face of the rotating piston, each enlargement comprising a section of a drum-shaped cylinder virtually coextensive with the end walls and parallel to and concentric with its respective pivot;

a close-fitting cavity machined in the stator for each abutment enlargement, to receive the enlargement as it is forced upward by the piston during the compression stroke.

4,423,711
MULTIPLE PORT INTAKE MEANS FOR ROTARY PISTON ENGINES

Tomoo Tadokoro; Nobuhiro Hayama, and Toshimichi Akagi, all of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima, Japan

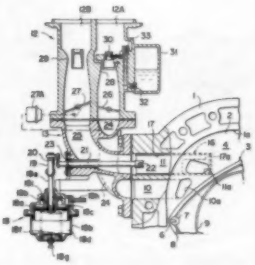
Filed Jul. 15, 1981, Ser. No. 283,744

Claims priority, application Japan, Jul. 16, 1980, 55-97860; Jul. 16, 1980, 55-97861; Jul. 16, 1980, 55-97862; Jul. 16, 1980, 55-97864

Int. Cl.³ F02B *53/06*

U.S. Cl. 123—242 **6 Claims**

1. A rotary piston engine including a casing comprised of a rotor housing having a trochoidal inner wall and a pair of side housings secured to the opposite sides of the rotor housing to define a rotor cavity therein, a substantially polygonal rotor disposed in said rotor cavity for rotation with apex portions is sliding engagement with the inner wall of the rotor housing to define working chambers of variable volumes to conduct intake, compression, combustion, expansion and exhaust strokes, exhaust port means formed in said casing so as to open to said rotor cavity at the working chamber in the exhaust stroke, primary intake port means formed in one of the side housings so as to open to said rotor cavity at the working chamber in the intake stroke, said primary intake port means being located so that it is opened to the working chamber after the same working chamber is substantially disconnected from the exhaust port means, secondary intake port means formed in the other side housing so as to open to said rotor cavity and located so that it is opened to and disconnected from the working chamber substantially simultaneously with the primary intake port means, auxiliary intake port means formed in at least one of the side housings so as to open through at least one opening to the rotor cavity at the working chamber in the intake stroke and located so that is is disconnected from the same working chamber later than the primary and secondary intake port means, control valve means for opening and closing said auxiliary intake port means, intake passage means having throttle valve means and connected to the primary, secondary and auxiliary intake port means, said control valve means being provided adjacent the opening of the auxiliary intake port means, actuator means for actuating the control valve means to open the same under a predetermined engine load condition.



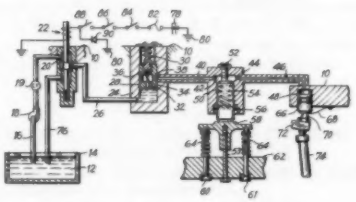
4,423,712
ENGINE RETARDER SLAVE PISTON RETURN MECHANISM

Harry H. Mayne, Simsbury, and Raymond N. Quenneville, Suffield, both of Conn., assignors to The Jacobs Mfg. Company, Bloomfield, Conn.

Filed Apr. 28, 1982, Ser. No. 372,551

Int. Cl.³ F02D *31/00*

U.S. Cl. 123—321 **6 Claims**



1. In an engine retarding system of a gas compression relief type including an internal combustion engine having exhaust valve means including an exhaust valve spring and pushrod means, hydraulically actuated first piston means associated with said exhaust valve means to open said exhaust valve means at a predetermined time and movable between first and second positions, second piston means actuated by said pushrod means movable between first and second positions and hydraulically interconnected with said first piston means, adjustable stop means axially displaced from said first piston means to define said first position of said first piston means, the improvement comprising an hydraulic return mechanism operable when said first piston means approaches said second position, said hydraulic return mechanism comprising reset valve means mounted in said adjustable stop means for reciprocating motion therewith between first and second positions and

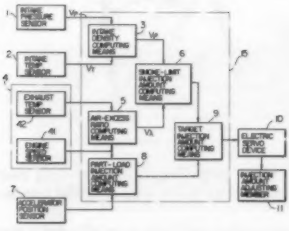
adapted to seal against said first piston means, first spring means associated with said adjustable stop means and said reset valve means and biasing said reset valve means toward said first piston means, accumulator piston means located coaxially with respect to said first piston means, second spring means adapted to bias said accumulator toward said first piston means, passageway means formed in said first piston means, said passageway means communicating at one end with said reset valve means and at the opposite end with said accumulator piston means, said reset valve means adapted to seal off said passageway means whenever said reset valve means is in contact with said first piston means to prevent the flow of hydraulic fluid therethrough, the motion of said reset valve means between its first and second positions being less than the motion of said first piston means between its first and second positions whereby when said first piston means approaches its second position said passageway means is opened to permit the flow of hydraulic fluid into said accumulator piston means whereby the hydraulic pressure acting on said first piston means is equalized so as to permit said exhaust valve spring to close said exhaust valve and return said first piston means towards its first position while said second piston means is still in its second position.

4. A process for operating a compression relief engine retarder having an hydraulic pressure circuit comprising applying hydraulic pressure to the hydraulic pressure circuit to drive a piston means from a first toward a second position to open mechanically an engine exhaust valve near the end of the compression stroke of the engine against the bias of the engine exhaust valve spring sensing the position of the piston means when the engine exhaust valve has attained a predetermined open position and the said piston means has approached its second position, equalizing the hydraulic pressure acting on the piston means when the said piston means is at the second position while maintaining an hydraulic pressure in the engine retarder hydraulic pressure circuit, mechanically closing the engine exhaust valve by the bias of the engine exhaust valve spring while maintaining an hydraulic pressure in the engine retarder hydraulic pressure circuit, and thereafter relieving the hydraulic pressure in the hydraulic pressure circuit.

4,423,713
ELECTRIC CONTROL APPARATUS FOR A FUEL INJECTION PUMP

Hiroshi Sami, Susono; Tatehito Ueda, Numazu; Osamu Ito, Toyota; Nobuhito Hobo, Inuyama; Takashi Naitou, Oobu; Tetsuya Nakamura, Chiryu; Shizuo Kawai, Kariya, and Yukinori Miyata, Oobu, all of Japan, assignors to Nippondenso Co., Ltd., Kariya and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, both of, Japan

Filed May 2, 1980, Ser. No. 146,369
Claims priority, application Japan, Jul. 10, 1979, 54-87884
Int. Cl.³ F02D *5/00;* **F02M** *59/20*
U.S. Cl. 123—357 **7 Claims**



1. An electric control apparatus for a fuel injection pump of a Diesel engine having a supercharger, comprising:

an intake pressure sensor for sensing a pressure in an intake manifold of said engine;

an intake temperature sensor for sensing a temperature in said engine intake manifold;

means connected to said sensors such that a detection value of said intake pressure sensor is divided by a detection value of said intake temperature sensor to thereby compute an intake density;

operating condition sensing means for sensing an operating condition of said engine;

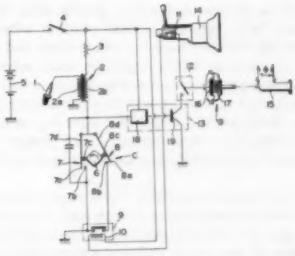
means connected to said operating condition sensing means to compute an air-excess ratio from detection signals generated by said operating condition sensing means; and

means connected to said intake density computing means and said air-excess ratio computing means such that a smoke-limit injection amount to said engine is controlled in accordance with a signal from said intake density computing means which is indicative of intake density and a signal from said air-excess ratio computing means which is indicative of air-excess ratio.

4,423,714
INTERNAL COMBUSTION ENGINE

Yoshimasa Hayashi, Kamakura, Japan, assignor to Nissan Motor Company Limited, Yokohama, Japan

Filed May 21, 1981, Ser. No. 266,002
Claims priority, application Japan, May 23, 1980, 55-68455
Int. Cl.³ F02P *5/04*
U.S. Cl. 123—407 **12 Claims**



1. An internal combustion engine for a vehicle having a spark plug disposed in each combustion chamber, said engine comprising:

means for generating an ignition signal which causes the spark plug to produce a spark, said ignition signal generating means being capable of generating said ignition signal at retarded timings relative to timings dependent on a predetermined schedule;

circuit means for detecting an engine operation range which is conducive to an undesirable level of combustion noise by detecting all of (1) a high engine speed condition, whernever engine speed is higher than a predetermined value, (2) a high engine load operating condition, whenever engine load is higher than a predetermined value, and (3) a condition in which a transmission gear arrangement of said vehicle is in a lower speed gear position, and for generating a signal in response thereto, said engine speed condition being detected independently of said transmission gear condition; and

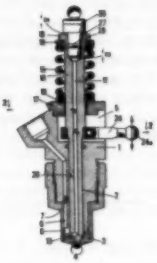
means for decreasing engine combustion noise by causing said ignition signal generating means to generate said ignition signal at said retarded timings in response to said signal from said circuit means.

4,423,715

FUEL PUMP-INJECTOR UNITARY ASSEMBLY FOR INTERNAL COMBUSTION ENGINE

Andre Ecomard, Marly-le-Roi; Louis Briand, Sevres, and Philippe Pinchon, Rueil-Malmaison, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Jun. 26, 1981, Ser. No. 277,588
Claims priority, application France, Jun. 27, 1980, 80 14370
Int. Cl.³ F02M 59/20
U.S. Cl. 123—501 10 Claims



1. A fuel pump and injector unitary assembly for an internal combustion engine having an axial bore with a bore wall and a bottom portion traversed by at least one fuel spray nozzle, at least one inlet duct opening in said bore near said bottom portion, and said inlet duct being in communication with a fuel source, said communication precluding an intermediate metering chamber, at least one fuel outlet port opening on said bore wall at a level different from that of said inlet duct, a plunger having a wall, a tapered end and a central axis, and being slidable in said bore between a first position wherein said plunger is spaced from the bore bottom portion and a second position, corresponding to the injection end, wherein said tapered end of said plunger obturates said spray nozzles at said bottom portion, said fuel pump and injector unitary assembly further comprising metering means for injecting an adjustable fuel charge during the displacement of said plunger towards said second position, said metering means comprising in combination:

(a) a recess, having an upper and lower edge, located in said plunger wall in communication with said outlet duct when said plunger is in said first position, at least a portion of the upper edge of said recess defining a ramp inclined to the plunger axis, and said ramp being for controlling the beginning of the injection by obturating said outlet duct when said plunger moves to said second position,

(b) a transfer passageway in said plunger having one end in communication with said recess and its other end opening near the bottom of said bore, and

(c) means for adjusting the relative angular position of said plunger and of said outlet duct.

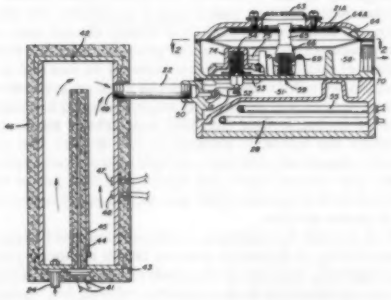
4,423,716

FUEL SYSTEM FOR INTERNAL COMBUSTION ENGINES

James W. Glass, New Castle, Pa., assignor to Enneo Inc., Las Vegas, Nev.

Filed Nov. 16, 1981, Ser. No. 321,820
Int. Cl.³ F02M 31/00
U.S. Cl. 123—557 8 Claims

1. In a fuel supplying system for an internal combustion engine having an inlet manifold, comprising: a device in communication with said inlet manifold, air supplying means in communication with said device, a throttle valve in communication with said device, at least one valve responsive in operation to inlet manifold pressure upstream of said throttle valve, a hot fuel gas generator upstream of said pressure responsive valve, fuel supplying means adapted to supply liquid fuel at predetermined fuel pressure to said hot fuel gas generator and temperature and pressure sensor means in said hot fuel gas generator for emitting signals representative of temperature and pressure in said hot fuel gas generator; signal comparator/-controller means coupled to said sensor means, fuel regulating means positioned in said fuel supplying means and heating means positioned in said hot fuel gas generator coupled to said comparator/controller means and responsive to said signals for regulating fuel supplied to said hot fuel gas generator and for



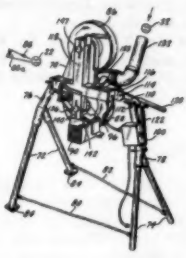
regulating said heating means so as to maintain known temperatures therein sufficient to gasify said liquid fuel, the improvement wherein said device, throttle valve, the valve responsive in operation to inlet manifold pressure and the hot fuel gas generator are adjacent to and in communication with one another and the throttle valve is arranged to finally control the hot gaseous fuel supplied the engine through said device, and secondary heating means provided in said inlet manifold pressure responsive valve.

4,423,717

VARIABLE DOUBLE WHEEL BALL PROPELLING MACHINE

Edward W. Kabelin, 15701 Container La., Huntington Beach, Calif. 92649

Continuation of Ser. No. 914,528, Jun. 12, 1978, abandoned.
This application Jun. 16, 1980, Ser. No. 160,116
Int. Cl.³ F41B 15/00
U.S. Cl. 124—78 9 Claims



1. A machine for propelling balls of at least two different diameters with accurate speed, direction and spin including:

a body;

means for supporting said body in an adjustable manner with respect to the ground;

a pair of opposed wheel assemblies;

adjustable support means connected to said body and supporting said wheel assemblies so that at least two predetermined spaces being less than the diameter of one of the

balls and the other predetermined space being less than the diameter of the other ball;

means to rotate said wheel assemblies in opposite directions with at least one predetermined spin ratio therebetween; and

means to guide a ball to be thrown into said predetermined space for frictional engagement with said rotating opposed wheel assemblies for propulsion thereby, said means to guide a ball including:

a ball inserter positioned between said wheel assemblies, said inserter being generally cylindrical in shape and having an inlet end and an outlet end, said outlet end including concave cutouts on opposite sides thereof to provide clearance for said wheel assemblies;

a ball chute being generally cylindrical in shape and having a portion spaced from said wheel assemblies and facing the direction of ball propulsion removed therefrom so that a ball moving therethrough can be observed by a person at whom the ball is going to be propelled so that the person can anticipate the propulsion of the ball; and

connector means adjustably connecting said ball chute to said ball inserter so that said ball chute can be maintained at an orientation which causes gravity to move the balls toward said ball inserter no matter the orientation of said body, said means to rotate said wheel assemblies further including:

an electric motor having at least first and second pulley outputs;

a first pulley assembly having at least first and second inputs and being connected to one of said opposed wheel assemblies;

a second pulley assembly having at least first and second inputs and being connected to the other of said opposed wheel assemblies, said first pulley output of said electric motor being in alignment with said first pulley inputs of said first and second pulley assemblies and said second pulley output of said electric motor being in alignment with said second pulley inputs of said first and second pulley assemblies; and

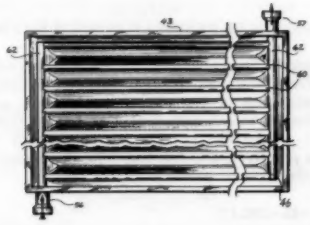
a drive belt threadable about each of said aligned pulley inputs and output, said drive belt being threadable about said motor pulley and one of said pulley assemblies in a first rotative direction and about the other pulley assembly in the opposite rotative direction, each of said aligned pulley inputs and outputs providing a different rotative speed to said wheel assemblies when said electric motor speed is the same.

4,423,718

SOLAR COLLECTOR PANEL AND ENERGY SHIELD

John D. Garrison, 5607 Yerba Anita Dr., San Diego, Calif. 92115

Filed Feb. 24, 1982, Ser. No. 351,921
Int. Cl.³ F24V *3/02*
U.S. Cl. 126—438 **22 Claims**



1. A solar collector panel consisting of:

a lower sheet formed as a plurality of substantially parallel linear concentrating surface troughs terminating at each end in respective cross manifold concentrating surface troughs, the lower sheet having a mirrored coating;

an upper solar transparent sheet sealed to said lower sheet whereby to form an envelope;

an absorbing tube network having a plurality of substantially parallel longitudinal tube members terminating at each end in respective cross manifold tube members, said tube network positioned between said lower sheet and said upper sheet within said envelope whereby each of said longitudinal tube members are positioned within a respective linear concentrating surface troughs and said respective cross manifold tube members are positioned within respective manifold concentrating surface troughs;

the tube network coated with a solar absorbing surface; and

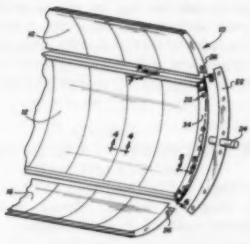
the absorbing tube network having an entrance sealably protruding through said envelope from one of said manifold tube members and an exit sealably protruding through said envelope from the opposite manifold tube member and said absorbing tube network being suitable for passing a heatable fluid therethrough.

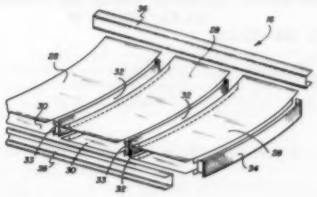
4,423,719

PARABOLIC TROUGH SOLAR COLLECTOR

Joseph A. Hutchison, Dallas, Tex., assignor to Solar Kinetics, Inc., Dallas, Tex.

Continuation of Ser. No. 136,828, Apr. 3, 1980, Pat. No. 4,240,406. This application Aug. 11, 1982, Ser. No. 407,106
Int. Cl.³ F24J *3/02*; G02B *5/10*
U.S. Cl. 126—438 **14 Claims**



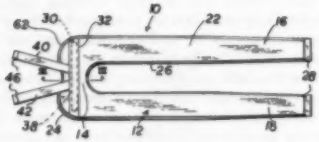


1. A parabolic solar collector comprising at least one monocoque stressed-skin module further comprising a plurality of stressed-parabolic channels fastened to and supported by a plurality of parallel parabolic bows, said stressed parabolic channels further comprising at least one interior parabolic mirror channel and at least one exterior parabolic channel, at least one of said stressed parabolic channels further comprising a central parabolic surface having a channel return edge disposed in perpendicular relation to each curved edge of said parabolic surface, each said channel return edge being in facing contact with and connected to a parabolic bow.

4,423,720
PATELLAR STABILIZING ORTHOSIS

Robert H. Meier, and Evelyn Farr, both of Jackson, Mich., assignors to Camp International, Inc., Jackson, Mich.

Filed May 17, 1982, Ser. No. 378,503
Int. Cl.³ A61F 3/00
U.S. Cl. 128—80 C 8 Claims



1. A patellar stabilizing orthosis comprising, in combination, a U-shaped body formed of a nonelastic fabric having a pair of elongated substantially parallel legs interconnected by a base portion, said body having an outer surface of finely looped material and an inner surface of cushioned material, said legs each having a free end, a hooked fastener affixed to each leg free end to releasably fasten to said body outer surface, a cushioned pad mounted upon said body inner surface at said base portion, a pair of elastic straps each having an inner end affixed to said body at said base portion and a free outer end, and a hooked fastener affixed to each strap free outer end adapted to releasably fasten to said body outer surface whereby upon placing said pad laterally with respect to the patella said legs are wrapped about the wearer's leg above and below the patella and said leg free end fasteners are attached to said body outer surface and said straps extend from said base portion in the opposite direction with respect to said body legs and said strap free end fasteners are fastened to the adjacent leg outer surface placing said straps under tension.

4,423,721
DEVICE FOR INSERTION AND EXTRACTION OF MEDULLARY NAILS

Wolf-Dieter Otte; Heinz Otte, both of Volkach, Fed. Rep. of Germany; Siegfried Schider, Reutte, and Otto Wiesner, Reutte-Muehl, both of Austria, assignors to Schwarzkopf Development Corporation, New York, N.Y.

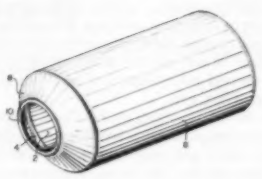
PCT No. PCT/US79/00710, § 371 Date May 9, 1980, § 102(e) Date May 9, 1980, PCT Pub. No. WO80/00534, PCT Pub. Date Apr. 3, 1980
PCT Filed Sep. 4, 1979, Ser. No. 351,127
Claims priority, application Austria, Sep. 4, 1978, 6367/78
Int. Cl.³ A61F 5/04
U.S. Cl. 128—92 EC 4 Claims

1. In a metallic device for insertion and extraction of medullary nails, comprising a guide tube (1) with striking elements (7,9) on both ends thereof, a displaceable strike bushing (6) disposed concentrically and slidably relative to said guide tube, said striking elements being removable from said guide tube, the improvement comprising the end of the guide tube towards the medullary nail has a doubly reduced diameter in two successive longitudinal sections (2,3), said tube diameter diminishing to the diameter of the successive section at each transition between the individual longitudinal sections; the end longitudinal section (3) towards the medullary nail having the smallest diameter and being threaded; the intermediate longitudinal section, between said guide tube and said end section, having concentrically disposed thereabout one of said striking elements, said striking element including an insertion sleeve (7) which is with said striking element slidably displaceable on said intermediate section; during insertion of said nail, said insertion sleeve bears against the end face of said nail and delivers directly thereto the force imported by striking said striking element with said strike bushing; said strike bushing being made from a composition having a density greater then 10 g/cm³ wherein said composition is a material selected from the group consisting of a sintered composite of principally tungsten with metalic binders or a metal powder encased in a steel jacket.

4,423,722
BANDAGE GUARD

Dennis M. Dickman, 227 Princeton St., Jefferson, Mass. 01522

Filed Oct. 5, 1981, Ser. No. 308,094
Int. Cl.³ A61F 13/00; A61D 13/00; B65B 11/00
U.S. Cl. 128—132 R 1 Claim



1. A bandage guard comprising a rigid tubular member having an open first end and a closed second end, a flexible sleeve member mounted on said tubular member, said sleeve member being closed at one end, and said tubular member being disposed wholly within said sleeve member, said second end of said tubular member being adjacent said closed end of said sleeve member, said sleeve member extending from said first end of said tubular member in a direction inwardly of said tubular member, said sleeve member having at its end removed from said tubular member an expandable opening therein, said opening being smaller than said tubular member open first end.

4,423,723
CLOSED CYCLE RESPIRATOR WITH EMERGENCY OXYGEN SUPPLY

Jörg Winkler, Stockelsdorf; Hans Matthiessen, Gross Parin, and Ernst Warncke, Lubeck; Adalbert Pasternack, Bad Schwartau, all of Fed. Rep. of Germany, assignors to Dragerwerk Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 11, 1982, Ser. No. 357,064
Claims priority, application Fed. Rep. of Germany, Mar. 13, 1981, 3109658
Int. Cl.³ A62B 7/04
U.S. Cl. 128—202.22 6 Claims

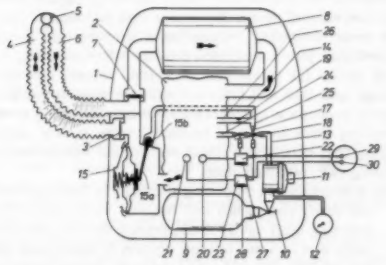
1. A closed cycle respirator with emergency oxygen supply comprising:

a breathing air circuit;

a breathing bag connected in said circuit;

a carbon dioxide absorber connected in said circuit;

a pressurized oxygen supply container having an outlet;
a pressure reducer connected to said outlet;
an oxygen supply line having one end connected to said pressure reducer;
a switching valve connected to the opposite end of said oxygen supply line and having a first position and a second position;
a first oxygen flow path connected from said switching valve to said bag and communicating with said oxygen supply line when said switching valve is in said first position;
a second oxygen flow path connected from said switching valve to said bag and communicating with said oxygen supply line when said switching valve is in said second position;
a solenoid valve connected in said first flow path;
a first control element connected to said solenoid valve for opening said solenoid valve;
a first oxygen sensor for sensing oxygen in said bag connected to said first control element for activating said first



control element to open said solenoid valve when less than a selected amount of oxygen is sensed in said bag;
a second control element connected to said switching valve for switching said switching valve between its first and second position;
a second oxygen sensor in said breathing bag connected to said second control element for switching said switching valve from its first to its second position when a level of oxygen is sensed in said bag to be above a selected upper limit or below a selected lower limit;
proportioning means in said second flow path for regulating a flow of oxygen into said bag from said oxygen supply line with said switching valve in its second position; and
a switching line having one end connected to said second flow path and automatically operable regulator means connecting the opposite end of said switching line to said breathing air circuit for supplying oxygen to said breathing air circuit from said oxygen supply line when said switching valve is in its second position and in response to decreased pressure in said breathing air circuit.

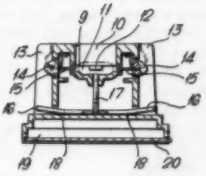
4,423,724

INHALATION DEVICE FOR POWDERED MEDICAMENTS

David M. Young, Loughborough, England, assignor to Fisons Limited, England

Filed Jun. 4, 1981, Ser. No. 270,237
Claims priority, application United Kingdom, Jun. 6, 1980, 8018586
Int. Cl.³ A61M *15/00*
U.S. Cl. 128—203.15 **9 Claims**

9. An inhalation device comprising a body portion end a hollow mouthpiece portion having an open end into which is located said body portion, the mouthpiece and body portions being longitudinally relatively movable with respect to one another; the body portion comprising a housing within which is situated an internal chamber adapted to receive a medicament container and having a container piercing cavity in communication with the chamber such that the container can pass from the cavity to the chamber; the mouthpiece portion having an outlet communicating with the chamber such that the medicament from within the container can pass from the chamber through the mouthpiece to the user and both portions being provided with cooperating passages in tangential communication with the chamber whereby air can be drawn through the device from said passages to the outlet so as to cause a swirling air flow through the chamber; the body portion including a transverse opening leading into said cavity, a spring biassed piercing needle mounted in said body portion such that said needle is movable and reciprocated in said transverse opening



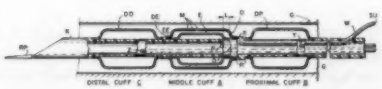
into the cavity so as to pierce a container when in the cavity and further including another opening leading into said cavity opposite said chamber, a pin member slidably mounted in said another opening, a lever arm pivotably mounted on said body portion about a fulcrum and acting on said pin member so as to movably reciprocate the pin member into the cavity to eject a container from the cavity into the chamber; the mouthpiece portion having an inwardly directed projection and said needle and lever arm being mounted with respect to said body portion such that said projection, needle and lever arm are in alignment whereby said; projection is adapted to engage in sequence the needle and the lever arm upon insertion of the body portion into the mouthpiece portion so as to cause said reciprocatable movement thereof.

4,423,725

MULTIPLE SURGICAL CUFF

Ostap E. Baran, and Andrij O. D. Baran, both of 219 E. 12th St., New York, N.Y. 10003

Filed Mar. 31, 1982, Ser. No. 363,872
Int. Cl.³ A61M *16/00, 25/00, 7/00*
U.S. Cl. 128—207.15 **10 Claims**



1. A multiple surgical cuff for introduction into an integral body passage comprising:
(A) A tubular base member having an unblockable lumen;
(B) A middle cuff member comprising (1) an imperforate inflatable tubular inner cuff member encircling said tubular base member, (2) a distensible tubular outer cuff member encircling said inner cuff member, the wall of said outer cuff member being multiperforated at spaced points;
(C) First passage means for communicating with the space between said inner cuff member and said outer cuff member for introducing a fluid into said space;
(D) Second passage means communicating with the space between said inner cuff member and said tubular base member for inflating said inner cuff member to displace wall portions thereof toward the wall of said outer cuff member, whereby the spacing between the opposed walls

of said inner and outer cuff members is reduced to transmit fluid outwardly through the perforations of the wall of said outer cuff member or to close said integral body passage;

(E) A proximal cuff member comprising a first inflatable tubular cuff member encircling said tubular base member on the near side of said middle cuff member;

(F) Third passage means communicating with the space between said first inflatable tubular cuff member and said tubular base member for inflating said first inflatable tubular cuff member, whereby said proximal cuff member can press against an adjacent body passage portion of said integral body passage;

(G) A distal cuff member comprising a second inflatable tubular cuff member encircling said tubular base member on the far side of said middle cuff member; p1 (H) Fourth passage means communicating with the space between said second inflatable tubular cuff member and said tubular base member for inflating said second inflatable tubular cuff member, whereby said distal cuff member can press against an adjacent body passage portion of said integral body passage; and

(I) Fifth passage means communicating with the space along said tubular base member between said proximal and middle cuff members;

(J) Wherein said middle cuff member, said proximal cuff member and said distal cuff member are permenantly located substantially adjacent to each other with respect to said tubular base member;

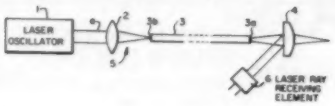
(K) Whereby, with deflation of said middle cuff member, a continuous flow of fluid may be fed past a body passage portion between said proximal and distal cuff members via said first and fifth passage means.

4,423,726

SAFETY DEVICE FOR LASER RAY GUIDE

Kyoshiro Imagawa, and Shiro Sakuragi, both of Kyoto, Japan, assignors to Agency of Industrial Science & Technology, Tokyo, Japan

Filed Oct. 20, 1981, Ser. No. 313,195
Claims priority, application Japan, Nov. 4, 1980, 55-153737
Int. Cl.³ A61B *17/36*
U.S. Cl. 128—303.1 **2 Claims**



1. A laser ray guide and safety device comprising:

a laser ray guide having an input element, an output element, and laser ray transmission means between said input and output elements;

a first laser ray-receiving means positioned for receiving rays reflected from the input side of said output element and including means for producing an abnormal signal when the laser rays passing said output element are other than normal; and

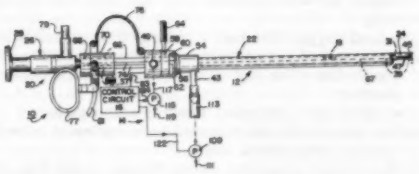
a second laser ray-receiving means positioned for receiving rays reflected from the input side of said input element and including means for producing an abnormal signal when the laser rays passing said input element are other than normal, whereby when an abnormal signal is produced by said first laser ray-receiving means it indicates trouble in said transmission means or said output element, and when an abnormal signal is produced by said second laser ray-receiving means it indicates trouble in a source of laser rays supplied to said input element or in said input element.

4,423,727

CONTINUOUS FLOW UROLOGICAL ENDOSCOPIC APPARATUS AND METHOD OF USING SAME

Jerrold Widran, 60 Estate Dr., Glencoe, Ill. 60022, and Helmut Krebs, 4849 N. Kenneth, Chicago, Ill. 60630

Filed Apr. 10, 1981, Ser. No. 252,941
Int. Cl.³ A61B *17/36*
U.S. Cl. 128—303.15 **11 Claims**



11. A method of using an endoscope including an enveloping tubular sheath, fluid conduit means including fluid inlet means, and fluid exhaust means disposed within said sheath, said conduit means extending longitudinally through said sheath for presentation into a restricted passage communicating with a body cavity for transmittal of a fluid stream through said passage and into and from a treatment zone subjected to a surgical procedure, tissue treatment means including means for removing tissue from said treatment zone, optical means including lens means at a distal end of said optical means for viewing said treatment zone,

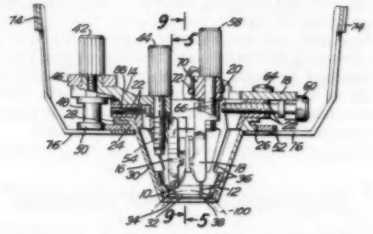
the improvement comprising the steps of flowing fluid into said fluid inlet means and out said fluid exhaust means; detecting body cavity fluid pressure directly and continuously, at a forward interior portion of said sheath, during flow of fluid into and out of the body cavity; continuously generating electrical signals indicative of said body cavity fluid pressure and conveying them outside of said sheath; and interrupting said fluid flow in response to said signals indicating an undesirable body cavity pressure.

4,423,728

CAM-GUIDED TREPHINE

David M. Lieberman, 174 8th Ave., Brooklyn, N.Y. 11215

Filed Feb. 26, 1982, Ser. No. 352,523
Int. Cl.³ A61B *17/16*
U.S. Cl. 128—310 **17 Claims**



1. A opthalmic device for cutting selected portions of an eye, comprising:

base means;

means to conform and secure the opthalmic device to the eye; first and second cutting means;

pattern means operatively connected to said base means and having a non-circular shape; and

rotation means adapted to be disposed and rotated on said base means, said rotation means having first and second blade mounting means at a portion thereof for securing

said respective first and second cutting blades thereto, said rotation means further adapted to operatively engage said pattern means, whereby when said rotation means are rotated on said base means, said first blade mounting means follows a path related to the non-circular shape of said pattern means.

4,423,729

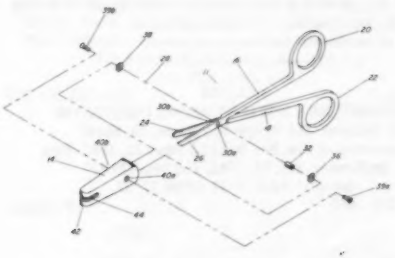
SUTURE INSTALLATION INSTRUMENT

Robert C. Gray, 280 Clifford, Blackfoot, Id. 83221

Filed Oct. 2, 1981, Ser. No. 307,841

Int. Cl.³ A61B *17/04, 17/32;* **B26B** *13/00*

U.S. Cl. 128—334 R **3 Claims**



1. An instrument for use in installing sutures comprising:

(a) a pair of scissors having blades defining a shearing line;

(b) a tapered hood member having a rounded nose portion and a hollow interior dimensioned to receive said blades and to permit pivotal manipulation thereof;

(c) pivot means extending transversely across the interior of said hood member for positioning said hood member in relation to said blades and to provide an axle for pivotal rotation of said blades within said hood and wherein said pivotal means includes a tubular shaft extending through said hood member and said blades to secure said shaft in position;

(d) slot means formed across said nose of said hood member, the plane of said slot means being in parallel alignment with the shearing line of said blades, the width of said slot means being related to the breadth of the interior of the hood member such that the blades can be parted sufficiently to permit suture threads to be accommodated at the back of said slot.

4,423,730

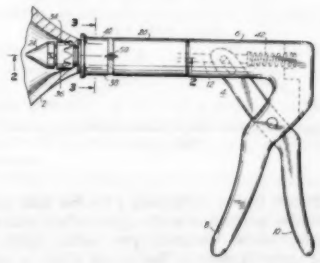
ATRIOTOMY BUTTON AND IMPLANTATION DEVICE

Shlomo Gabbay, Hartsdale, N.Y., assignor to Shelhigh Inc., Hartsdale, N.Y.

Filed Mar. 1, 1982, Ser. No. 353,343

Int. Cl.³ A61B *17/10;* **A61M** *5/00*

U.S. Cl. 128—334 R **5 Claims**



1. Atriotomy button comprising a metal ring having a plurality of forwardly longitudinally extending circumferentially spaced pointed extensions, and a collar having a plurality of longitudinally extending circumferentially spaced flexible extensions radially spaced outwardly from and directed toward the extensions on said ring, the inner diameter of that portion of the collar extending toward the metal ring being sufficiently larger than the outer diameter of the pointed extensions on said ring so that a substance grasped by said pointed extensions may be firmly held between said ring and collar when the ring is moved into and within the said collar.

3. Cannulation device comprising a metallic ring section having sharp longitudinally extending projections, a collar section having circumferentially spaced flexible extensions having an internal diameter greater than the external diameter of said ring, means mounting said collar spaced from and coaxially with said ring with the flexible extensions of the collar facing the sharp projections from said ring, means detachably connected to said ring section for moving the same through an incision of a hollow organ to be cannulated with the projections of said ring contacting the inner walls of the incision, said means including further means pulling said ring and the contacted walls of the incision within the flexible extensions on said collar, whereby the said walls are clamped in a hollow atriotomy button formed by the outer surface of said ring and the inner surface of said flexible extension.

4,423,731

SURGICAL DRESSINGS

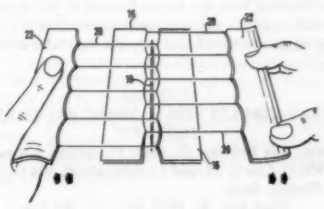
Reyadh K. Roomi, Leicester General Hospital, Gwendolen Rd., Leicester, England

Filed Sep. 4, 1981, Ser. No. 299,498

Claims priority, application United Kingdom, Sep. 9, 1980, 8029082

Int. Cl.³ A61B *17/04, 17/08*

U.S. Cl. 128—335 **3 Claims**



1. A surgical dressing for use to maintain elongate slit-type wounds of a patient's skin in a closed condition comprising:

first and second strips of adhesive plaster each adapted to adhere to the patient's skin alongside but slightly spaced from lengthwise extending edges of the wound;

a third strip of adhesive plaster having a plurality of filaments secured at spaced intervals along its length and coupled to said first strip;

a fourth strip of adhesive plaster having a plurality of filaments secured at spaced intervals along its length, interlaced with the filaments of the first and third strips, and coupled to said second strip;

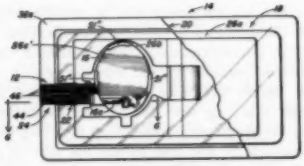
wherein the length of each filament exceeds the width of the first or second strips so that the third and fourth strips may be adhered to the patient's skin at regions beyond the second and first strips, respectively, and each filament being adapted in use to co-operate under tension between one of said first and second adhesive strips and one of said third and fourth adhesive strips on the opposite side of the wound to draw the edges of the wound together.

4,423,732

STERILE CONNECTOR SYSTEM FOR PACKAGED PACER

Peter P. Tarjan; Marvin L. Sussman, both of Miami, Fla., and Steven Jacobsen, Salt Lake City, Utah, assignors to Cordis Corporation, Miami, Fla.

Filed Feb. 12, 1981, Ser. No. 233,622
Int. Cl.³ A61N *1/00*
U.S. Cl. 128—419 P **18 Claims**



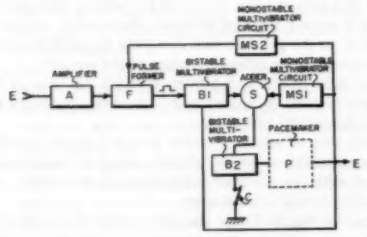
1. A connector system that transmits tissue stimulating electrical signals and bioelectric signals from the tissue to the packaged device between the interior and exterior of a closed packaging system having first and second wall members detachably sealed at a common periphery comprising, a flat, elongated connector strip having a first end location within the interior of the packaging system, a second end exterior to the packaging system and an intermediate portion disposed in the sealed peripheral region between said first and second wall members, said connector strip having a flexible, non-conductive substrate and at least one thin, longitudinally extending layer of a conductive material secured on and projecting from at least one surface of said substrate, and means for sealing said substrate, including its side surfaces and said conductive path, to said first and second wall members, said sealing means being capable of maintaining said seals during mechanical stresses on said connector strips and the surrounding portions of said first and second wall members, said sealing means comprising an adhesive material held in a recess formed in one of said first or second wall members adjacent said intermediate portion of said strip and adapted to hold and disperse said adhesive material.

4,423,733

RELAY CIRCUIT FOR CARDIAC PACEMAKER IMPLANT

Gino Grassi, Via Imbriani 21, Sesto Fiorentino; Leonardo Cammilli, Via G. Caselli 11, and Luciano Alcidi, Via G. Console 8, all of Firenze, Italy

Filed Aug. 21, 1981, Ser. No. 294,914
Int. Cl.³ A61N *1/36*
U.S. Cl. 128—419 PG **12 Claims**



1. A relay circuit for a cardiac pacemaker having a stimulator implanted in a pacemaker user, comprising:

first relay means for amplifying a detected cardiac wave, said first relay means being capable of relaying a signal characteristic of said cardiac wave,

second relay means for relaying a signal characteristic of a stimulus impulse of said stimulator of said pacemaker

cycle-to-cycle control means for receiving said characteristic signals from said first and said second relay means and for constructing a cycle-to-cycle wave signal characteristic of a cardiac T wave and a stimulus R wave representation respectively of an electrocardiogram,

wave absence detection means for detecting the absence of said cardiac wave or said stimulus impulse in said cycle-to-cycle control means, said wave absence detection means being capable of relaying a wave absence signal, and

means for receiving said wave absence signal including means for translating said wave absence signal into a counteraction signal, and

means for receiving said counteraction signal including means for signaling a counteraction, and

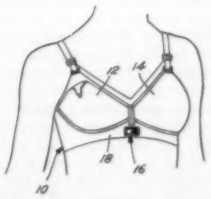
means to implement the counteraction.

4,423,734

NURSING BRA WITH NURSING INDICATOR

Pamela G. Schawel, 344 S. Elm St., Itasca, Ill. 60143

Continuation of Ser. No. 360,622, Mar. 22, 1982. This application Sep. 30, 1982, Ser. No. 429,427
Int. Cl.³ A41C *3/04*; G09F *21/02*
U.S. Cl. 128—460 **9 Claims**



1. In an improved nursing bra having left and right breast cups that are at least partially detachable to thereby form an opening near the left or right breast, respectively, an improvement comprising:

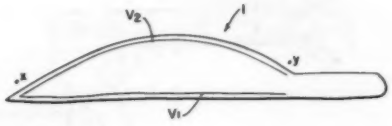
nursing indicator means for safely and easily designating which breast is to be used when starting a breast-feeding of an infant, said nursing indicator means being permanently fastened to the bra.

4,423,735

DYNAMIC ORTHOTIC DEVICE CONTAINING FLUID

John E. Comparetto, P.O. Box 433a, Nassawadoxi, Va. 23413

Continuation of Ser. No. 902,614, May 3, 1978, abandoned. This application Dec. 23, 1980, Ser. No. 219,737
Int. Cl.³ A43B *7/14*
U.S. Cl. 128—594 **5 Claims**



1. An orthotic device comprising a flexible fluid enclosure having a forefoot portion, an inside upper surface means and an exterior surface means, the inside upper surface means having an opposite upper exterior surface means which is cambered and has multiple defined ridge means to moderate fluid wave motion and direction, and a lower flat wall means forming a

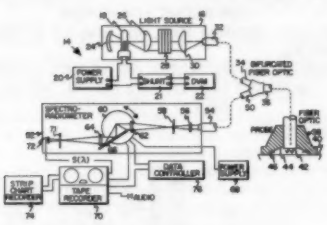
fluid enclosure with a heel strike portion means at one end of the enclosure which upon pressure by the foot at the upper exterior surface portion means adjacent the heel strike portion means creating horizontal, longitudinal and upward directed fluid waves to force the cambered upper exterior surface means to supinate the subtalar joint from a position of pronation, the longitudinal waves providing support to the forefoot immediately prior to and during toe-off at the portion of the enclosure distal to the heel strike at the forefoot portion.

4,423,736

METHOD FOR EVALUATION OF ERYTHEMA UTILIZING SKIN REFLECTANCE MEASUREMENTS

David P. DeWitt; Robert E. Hannemann; Barrett F. Robinson, all of West Lafayette, Ind., and Edward J. Hanley, Broken Arrow, Okla., assignors to Purdue Research Foundation, West Lafayette, Ind.

Filed Oct. 13, 1981, Ser. No. 310,474
Int. Cl.³ A61B *6/00*
U.S. Cl. 128—633 **15 Claims**



1. A method for determining erythema, said method comprising:

establishing a predetermined physiologic measure based upon blood content with respect to a patient;

exposing the skin of said patient to radiation and collecting said radiation reflected from said skin;

utilizing said collected radiation to provide an indication of skin reflectance measure; and

relating said indication of skin reflectance measure to said predetermined physiologic measure to thereby provide an indication of the extent of erythema with respect to the skin of said patient.

4,423,737

COMBINATION TOMOGRAPHIC AND CARDIOGRAPHIC ULTRASONIC IMAGING METHOD AND SYSTEM

Tsutomu Yano, Kawasaki; Yoshihiro Hayakawa, Sagamihara; Ryobun Tachita, Kawasaki; Kazuyoshi Irioka, Sagamihara; Hiroshi Fukukita, Tokyo, and Akira Fukumoto, Machida, all of Japan, assignors to Matsushita Electric Industrial Company, Limited, Osaka, Japan

Filed Feb. 4, 1981, Ser. No. 231,935
Claims priority, application Japan, Feb. 5, 1980, 55-13166
Int. Cl.³ A61B *10/00*
U.S. Cl. 128—661 **9 Claims**

1. An ultrasonic imaging system for diagnostic purposes comprising:

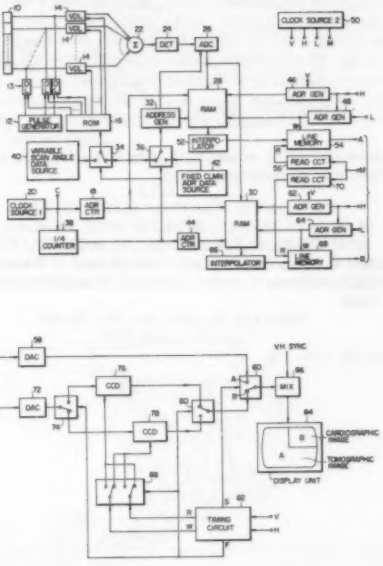
first means including an array of transducer elements for successively transmitting ultrasonic energy along each of a plurality of successive line paths to scan across the body of a patient;

second means for sampling and converting ultrasonic echo signals representative of the amplitude of ultrasonic energy returning along said scan paths to digital echo data;

first and second digital memories each having a matrix of storage cell locations arranged in columns and rows;

third means for writing the digital echo data into columns of said first memory for storage and for reading out the stored echo data by rows into a first digital-to-analog converter to generate a first signal corresponding to a tomographic representation of the scanned cross-section of said body;

fourth means for writing said digital echo data generated in response to the ultrasonic echo signals successively returning along a desired line path into columns of said second memory for storage and for reading out the stored



echo data by rows into a second digital-to-analog converter to generate a second signal corresponding to a time-motion representation of the cardiac structure along said desired line path; and

fifth means responsive to said first and second signals for providing a simultaneous display of said tomographic and time-motion representations in respective different areas of a single viewing screen.

4,423,738

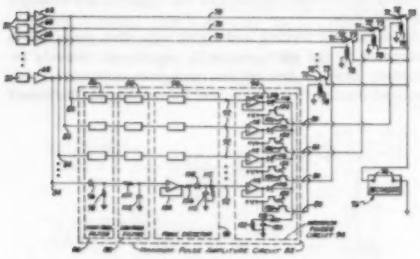
NONINVASIVE BLOOD PRESSURE MONITORING TRANSDUCER

Peter M. Newgard, Redwood City, Calif., assignor to SRI International, Menlo Park, Calif.

Filed Nov. 4, 1977, Ser. No. 848,753
Int. Cl.³ A61B *5/02*
U.S. Cl. 128—672 **3 Claims**

1. In a system for the continuous external measurement of blood pressure in an underlying artery comprising at least one transducer array having a multiplicity of individual pressure sensitive elements, each of said individual pressure sensitive elements in said array having at least one dimension smaller than the lumen of the underlying artery in which blood pressure is measured and each individual pressure sensitive element being capable of producing a continuous waveform having an amplitude which is a function of blood pressure in an underlying artery, means responsive to the waveform output of all of the said individual pressure sensitive elements to select the single one of the said transducer elements which is best positioned in the arterial pressure sensing environment for blood pressure measurement, and means to utilize the output of only

the said single one of the said individual pressure sensitive elements to measure blood pressure and produce a continuous



waveform having an amplitude which is a function of blood pressure in an underlying artery.

4,423,739

END TIDAL CARBON DIOXIDE GAS ANALYZER

Robert E. Passaro, and Irvin G. Burough, both of Walnut Creek, Calif., assignors to Andros Analyzers Incorporated, Oakland, Calif.

Filed Aug. 24, 1981, Ser. No. 295,486
Int. Cl.³ A61B *5/08*
U.S. Cl. 128—719 **22 Claims**

1. A method for determining the partial pressure of carbon dioxide in the arterial blood of a patient under anesthesia, comprising, detecting the carbon dioxide concentration at the end tidal of the patient's exhaled breath by measuring the infrared energy absorbed at a predetermined first wavelength band coinciding with a peak absorption wavelength of carbon dioxide, detecting the nitrous oxide concentration at the end tidal of the patient's exhaled breath by measuring the infrared energy absorbed at a predetermined second wavelength band coinciding with a peak absorption wavelength of nitrous oxide, and correcting the detected value of the carbon dioxide concentration in accordance with the detected value of the nitrous oxide concentration.

4,423,740

SLIT CATHETER METHOD FOR MEASURING INTERSTITIAL PRESSURE

G. S. Peter Castle, and Cecil H. Rorabeck, both of London, Canada, assignors to Howmedica, Inc., New York, N.Y.

Filed Mar. 31, 1981, Ser. No. 249,314
Int. Cl.³ A61B *5/00*
U.S. Cl. 128—748 **4 Claims**

1. A method for measuring interstitial tissue pressure comprising:

inserting a cannula into said interstitial tissue;

passing an unobstructed catheter having a distal end and a proximal end and having an inner wall and an outer wall through said inserted cannula into said interstitial tissue, said catheter being filled with a physiologically compatible fluid and the distal end thereof being provided with a plurality of longitudinal slits defining a plurality of petals between them;

withdrawing said cannula from said interstitial tissue leaving the distal end of said catheter in situ with said petals form-

ing an obtuse angle with the adjacent inner catheter wall; and

reading said pressure on a pressure sensing device at the proximal end of said catheter.

4,423,741

MIDSTREAM SAMPLING OF CATHETERIZED LIQUID FLOW FROM A BODY CAVITY AND IMPROVED COUPLING THEREFOR

Norman Levy, Highland Park, Ill., assignor to Plasco, Inc., Gurnee, Ill.

Continuation of Ser. No. 111,591, Jan. 14, 1980, abandoned. This application Mar. 22, 1982, Ser. No. 360,409
Int. Cl.³ A61B *10/00*
U.S. Cl. 128—768 **9 Claims**

1. In a urinary catheterization system that includes upstream flexible catheter supply tube means through which captured liquid is ducted, downstream flexible receptor tube and capture means spaced from said upstream tube means and adapted to receive liquid therefrom, and a tubular cross member constructed to define intersecting elongated passageways each partially bounded by a pair of spaced, elongated, open-ended tubular arms of internal cylindrical periphery, said cross member being interposed between said upstream and downstream tube means and providing spaced upstream and downstream tubular arms thereof respectively telescoped with portions of said upstream and downstream flexible tube means to provide separable but liquid tight connections between each tube means and its tubular arm, and with the other pair of opposed tubular arms having an internal cylindrical periphery for receiving therein an elongated, slidable, valve member, of exterior cylindrical periphery, that requires application thereto of a deliberate positive manual force to move said slidable member in either of opposite directions;

the improvement of a multiple position midstream valve, for directing the catheterized urine selectively along either of two completely separate flow paths in the slidable valve member to avoid cross contamination of the urine and/or of the technician handling the equipment and surroundings, comprising, in combination:

said elongated and selectively positionable slidable valve member being shaped and arranged to define a first transverse flow passageway means formed in and through said valve member and extending substantially diametrically of the longitudinal axis of said valve member and at a location spaced axially from both ends of said valve member, and a second flow passageway means in said valve mem-

ber but spaced axially from said first flow passageway means, said second flow passageway means being shaped to provide a first portion thereof extending radially into the valve member from a terminal opening in the side wall of the elongated valve member, and a second portion thereof communicating with said first portion and extending axially of the valve member to terminate at and through one end of the elongated valve member;

the other end of the elongated valve member projecting axially outwardly of its said surrounding tubular arm and being provided thereat with grippable control means which affords means to effect manual selective axial movement of the valve member for axial positioning of said valve member in said second pair of opposed tubular arms;

said valve member being shaped to provide seal surfaces thereon which slide against and cooperate with the inner periphery of the second pair of tubular arms to prevent liquid flow leakage between the adjacent surfaces of the valve member and the surrounding tubular arms, and which also function to isolate the first and second flow passageways means in the valve member from each other, so as to foreclose cross flow between said flow passageway means; and

means operatively associated with said control means of said elongated slide valve member, but spaced from the interior of the tubular arms that surround the slide valve member, and cooperating with means provided integrally on the exterior of said cross member for preventing rotation of the elongated, cylindrical, slide valve member about its longitudinal axis and providing means to precisely selectively position each of the two flow passageway means in the valve member in flow receiving relation relative to the flow supplying passageway through said upstream tubular arm of the cross member.

4,423,742

METHOD AND APPARATUS FOR DETECTING SOFT SECTIONS OF TOBACCO FILLERS

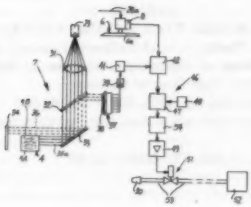
Joachim Reuland, Neu-Börnsen, Fed. Rep. of Germany, assignor to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany

Filed Sep. 14, 1981, Ser. No. 302,240

Claims priority, application Fed. Rep. of Germany, Sep. 18, 1980, 3035166

Int. Cl.³ A24C *5/18*

U.S. Cl. 131—84 C **33 Claims**



1. A method of detecting those portions of a continuous rod-like filler of fibrous material, especially a filler consisting of or containing shredded and/or otherwise comminuted tobacco, which contain less than a desired quantity of fibrous material, comprising the steps of forming a continuous stream of variable height at least the major part of which normally contains a surplus of fibrous material; conveying the stream lengthwise in a predetermined direction and along a predetermined path so that one side of the stream is located in a first plane and the distance between such one side and another side of the stream which is located opposite the one side varies as a function of variations of the height of the stream; removing the surplus at the other side of the stream in a predetermined first portion of said path, including trimming the stream in a second plane which is spaced apart from said first plane whereby the thus trimmed stream is converted into said filler; condensing the filler and draping the filler into a web of wrapping material to form a continuous wrapped filler in a second portion of said path downstream of said first portion; monitoring the density of the filler downstream of said first portion of said path and changing the position of one of said planes with reference to the other of said planes as a function of deviations of monitored density from a predetermined density; monitoring the height of successive increments of the stream upstream of said second portion of said path and generating first signals denoting the height of the respective increments; monitoring the distance between said planes and generating second signals denoting such distance; comparing said first and second signals; and generating third signals denoting the differences between said first and second signals.

4,423,743

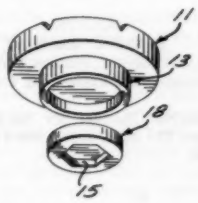
GRAVITY HELD ASHTRAY APPARATUS

Alfonse Spielvogel, 10261 Delano Dr., Cypress, Calif. 90630

Filed Jun. 29, 1981, Ser. No. 278,048

Int. Cl.³ A24F *19/00, 19/10*

U.S. Cl. 131—231 **3 Claims**



1. A gravity held ashtray apparatus for mounting on an upstanding hex nut assembly included in the plumbing leading to a urinal and formed with an upwardly facing surface, said apparatus including:

an upwardly opening cup-shaped ashtray for receiving ashes; and

a boss assembly formed on the bottom of said ashtray and including a downwardly opening hexagonal shaped socket for closely and removably fitting over said hex nut and including a substantially flat downwardly facing bearing surface for setting on said upwardly facing surface of said hex nut assembly, said boss assembly further including a peripheral wall surrounding said bearing surface to define the hexagonal shape of said socket to complementally fit over the facets of said hex nut to support said ashtray from shifting and tipping relative to said hex nut assembly whereby said socket may be removably inserted on said hex nut assembly to be supported thereon by said bearing surface, said boss assembly including a downwardly opening tube and an insert removably received in said tube and formed with said hexagonal shaped socket.

4,423,744

TOBACCO SMOKE FILTER CONTOURED TO PROVIDE UNDILUTED AIR FLOW AND METHOD AND APPARATUS FOR MANUFACTURING SAME

Richard M. Berger, Midlothian, Va., assignor to American Filtrona Corporation, Richmond, Va.

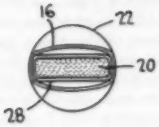
Filed Dec. 23, 1981, Ser. No. 333,802

Int. Cl.³ A24D *3/00, 3/04*

U.S. Cl. 131—336 **22 Claims**

1. In a smoke filter element having smoke receiving and discharging ends and of the type in which a rod of smoke-pervious filter material is circumscribed with a rod wrap of

smoke-impervious material which is in turn wrapped with air-impervious tipping means, an improvement wherein said tipping means peripherally engages said rod wrap for a first length of said element extending from said smoke receiving end to substantially preclude passage of smoke therebetween, said tipping means being spaced from said rod wrap along a second length of said element extending from said smoke discharging end to define a space between said rod wrap and said tipping means along said length and at said smoke discharging end, and wherein said tipping means includes ventilation holes defined therein at a location along said second length of said element for permitting air to flow into and through said space in response to suction applied at said smoke discharging end of said element.

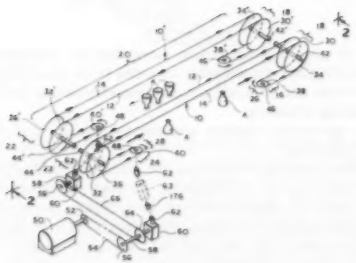


4,423,745

RINSING MACHINE

William C. Butt, and Buford L. Almond, both of Lynchburg, Va., assignors to Simplimatic Engineering Company, Lynchburg, Va.

Filed Nov. 29, 1982, Ser. No. 445,252
Int. Cl.³ B67C *1/047*; B08B *9/08*
U.S. Cl. 134—62 **24 Claims**



1. A rinsing machine for articles of glassware or the like comprising

(A) a pair of endless conveyors, each of said conveyors defining a travel path comprising a flight path and a return path, said flight path extending from a lower level article-intake segment through an upwardly-extending article-inversion segment, along an upper flight segment of appreciable length, through a downwardly-extending article-re-inversion segment, and to a lower level article-discharge segment, said return path being spaced from said flight path, said upper flight segment extending in a substantially horizontal plane;

(B) converging means for bringing said conveyors into article-grasping juxtaposition at said article-intake segment, diverging means for bringing said conveyors into article-releasing juxtaposition at said article-discharge segment, and means for retaining said conveyors in said article-grasping juxtaposition between said article-intake and article-discharge segments;

(C) means for rinsing inverted articles traveling along said upper flight segment; and

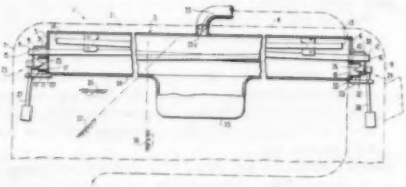
(D) means for driving each of said conveyors along its respective travel path.

4,423,746

DEVICE FOR VENTING FUEL TANKS

Dieter Scheurenbrand, Ostfildern, and Manfred Stotz, Aichwald, both of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Fed. Rep. of Germany

Filed Aug. 10, 1981, Ser. No. 291,508
Claims priority, application Fed. Rep. of Germany, Aug. 9, 1980, 3030288
Int. Cl.³ B65D *90/34*; F16K *17/12, 17/194*
U.S. Cl. 137—43 **14 Claims**



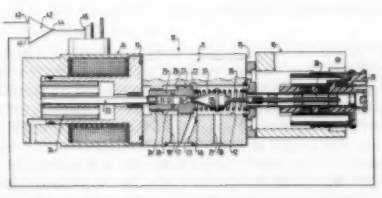
1. A device for venting automotive vehicle fuel tanks, comprising a volume equalizing vessel arranged in an upper zone of the interior of a fuel tank, said volume equalizing vessel being in communication with the atmosphere by equalizing conduit means, said volume equalizing vessel having outlet opening means disposed at opposite ends thereof close to respective side end walls of the fuel tank extending in a longitudinal direction with respect to the longitudinal direction of the vehicle, each said outlet opening means closable by a blocking element means pivotally mounted exteriorly of the volume equalizing vessel and connected with a weighted means swingably hanging in a depending manner in the tank below said blocking element means, wherein one of said weighted means causes the respective connected blocking element means to close one respective outlet opening means at one end of the volume equalizing vessel and another weighted means causes the respective connected blocking means to open a respective outlet opening means at an opposite end of the volume equalizing vessel when the fuel tank is inclined.

4,423,747

PRESSURE REGULATING VALVE

Joachim Heiser, Stuttgart, and Volkmar Leutner, Friolzheim, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jul. 15, 1981, Ser. No. 283,666
Claims priority, application Fed. Rep. of Germany, Sep. 16, 1980, 3034865
Int. Cl.³ G05D *16/00*
U.S. Cl. 137—85 **9 Claims**



1. A pressure regulating valve for controlling a fluid pressure proportionally to an electrical nominal valve signal, comprising a housing; a valve body in said housing; a proportion-

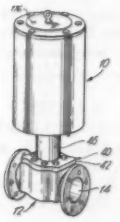
ally operating magnet having an armature and an electric input; a displacement pick-up having a movable member; a difference amplifier having inputs receiving a nominal value signal and an output signal from said displacement pick-up, and an output connected with said input of said magnet; a valve cone associated with said valve body and loaded in a direction opposite to a fluid pressure which is connected to an inlet in the valve housing and is controlled via variable flow path means defined by the valve body and the loaded valve cone, said valve cone being connected with said movable member of said displacement pick-up; and a measuring spring loading said valve cone and fixedly abutting said housing, said valve body being movable in said housing and adjustable by said armature of said magnet against the force of said measuring spring.

4,423,748

EMERGENCY SHUT DOWN DEVICE

James R. Ellett, Edmonton, Canada, assignor to Barlorne Resources Limited, Calgary, Canada

Filed Nov. 7, 1975, Ser. No. 629,942
Claims priority, application Canada, Sep. 2, 1975, 234571
Int. Cl.³ F16K *43/00, 37/00, 31/122*
U.S. Cl. 137—315 **6 Claims**



1. An emergency shut down device for a reciprocable valve comprising:

(a) a base member for connecting said device to a valve housing, said member having a central bore therethrough;

(b) a spring cartridge assembly including a generally cylindrical container having first plate means at one end, second plate means at the other end, an opening in said first plate means to receive said base member, an opening in said second plate means of a diameter greater than that of the first-mentioned opening, annular ring means in said container, and compression spring means between said first plate means and said ring means;

(c) an annular ram cup connected to and extending from said ring means toward said first plate means, said ram cup having a closure plate provided with a central opening, at the end distant from said ring means;

(d) a cap member connected to the exterior of said second plate means to cover the second-mentioned opening;

(e) a cylinder connected to and extending from said cap member into the interior of said ram cup;

(f) piston means sealingly slidable within said cylinder;

(g) stem means connected at one end to said ram cup and extending through the central opening in said ram cup, the interior of said assembly and said bore in said base member for connection to said reciprocable valve; and

(h) inlet means in said cap member for admitting fluid under pressure to a chamber formed in said cylinder between said cap member and said piston,

whereby fluid under pressure in said chamber will move said piston to abut said ram cup and then move said ram cup to extend the stem means from the base member and to simultaneously compress the spring, a loss of pressure permitting the spring to rapidly return the ram cup, piston and stem to an unextended condition.

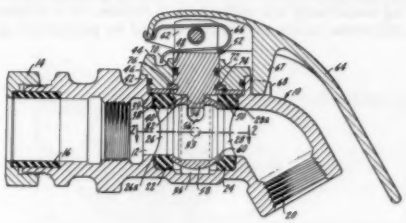
6. The device of claim 1 wherein said opening in said second plate means is larger in diameter than the central passage in said ring means whereby upon removing said cap member, said cylinder, piston, ram cup and stem can be removed from said spring cartridge assembly.

4,423,749

ANGLE COCK IMPROVEMENTS

Eugene W. Schmitt, Lockport, Ill., assignor to Sloan Valve Company, Franklin Park, Ill.

Continuation-in-part of Ser. No. 448,032, Dec. 8, 1982. This application Mar. 9, 1983, Ser. No. 473,659
Int. Cl.³ F16K *5/06*
U.S. Cl. 137—315 **5 Claims**



1. In a shutoff valve for use in a transportation environment, a body having an internal passage, a chamber in said body in communication with said passage, an opening in said body in alignment with said chamber,

a flexible seal member in the form of a housing positioned within said chamber and having openings therein in communication with said passage, said body opening being of a size and shape to permit movement of said seal member therethrough into position within said chamber opposite sides of said seal member having outwardly-extending lugs which mate with correspondingly-shaped and sized grooves on the inside of said chamber to prevent movement of said seal member within said chamber, air vent holes in said lugs preventing disengagement of the seal lugs from the body when the valve is closed, said seal member having peripheral bead-like sealing areas surrounding said seal member openings, said bead-like sealing areas being in sealing engagement with said chamber and each including, at each opening, a bead directly adjacent said opening, an adjacent groove, and a second bead, with said groove separating said peripheral beads,

a ball member positioned within and enclosed by said housing-like seal member, said ball member being rotatable to open and close said valve, said seal member having an opening therein slightly smaller than said ball member whereby said seal member is stretched to permit insertion of said ball member, but after insertion, said seal member confines said ball member therein,

a handle extending through said body and into engagement with said ball member, and a cover plate closing said body opening, with said handle permitting external operation to open and close said valve.

4,423,750

LIQUEFIED GAS OVERCHARGE PREVENTION DEVICE

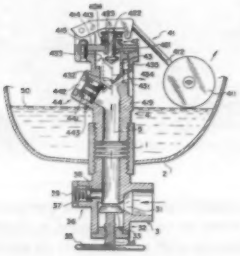
Mitsuo Morizumi, and Masahiro Kawahata, both of Yokohama, Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Continuation of Ser. No. 152,236, May 22, 1980, abandoned. This application Nov. 3, 1981, Ser. No. 318,074
Claims priority, application Japan, May 31, 1979, 54-72417[U]
Int. Cl.³ F16K *31/34*
U.S. Cl. 137—413 **5 Claims**

1. An automatic liquefied gas overcharge prevention device for installation within an enclosed tank, comprising:

(a) a valve case having:

(1) a supply passage to supply a liquefied gas;
(2) an inlet port connected to said supply passage, to which a supply pipe is attached to supply the gas from a gas source;
(3) an outlet port connected to said supply passage, from which the gas is supplied into the enclosed tank; and
(4) a poppet port communicating between said supply passage and a gasified space within the enclosed tank;
(b) a float being movable up and down in response to changes in the level of the supplied liquefied gas;
(c) a poppet valve element for opening or closing said poppet port in response to the position of said float;
(d) a float valve element having an orifice therein for opening and closing said outlet port in response to a pressure differential across said orifice created by pressurized gas



flowing therethrough and through said poppet port and in accordance with an area difference between the upper and lower surfaces thereof;
(e) a first relief valve for relieving an excessive pressure from within the enclosed tank to within said supply passage; and
(f) a second relief valve for relieving an excessive pressure from within said supply passage to outside the device;
whereby a liquefied gas can be supplied from the inlet port, through the supply passage and the outlet port, to within the enclosed tank, and regulated when the pressure in the tank increases beyond a predetermined level, an excessive pressure within the tank or within the supply passage being relieved through the first and second relief valves, thus regulating the gas pressure within the tank.

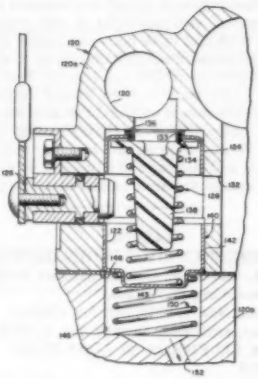
4,423,751

BYPASS VALVE AND ALARM ASSEMBLY

Leslie A. Roettgen, Columbus, Ind., assignor to Cummins Engine Company, Inc., Columbus, Ind.

Continuation-in-part of Ser. No. 214,673, Dec. 9, 1980, Pat. No. 4,366,837. This application Nov. 5, 1981, Ser. No. 318,101
Int. Cl.³ F16K *37/00*
U.S. Cl. 137—557 **13 Claims**

1. A valve and alarm assembly, comprising
(a) a housing containing an inlet conduit, a bypass conduit and a cavity communicating with the inlet conduit and the bypass conduit;
(b) alarm means for generating an alarm signal indicative of fluid pressure conditions within the inlet conduit and the bypass conduit;
(c) first piston means for activating said alarm means whenever the fluid pressure within the inlet conduit is above the fluid pressure within the bypass conduit by a first differential level, said first piston means including a sealing piston mounted for movement within the cavity between an off position and an on position;
(d) second piston means for activating said alarm means whenever the fluid pressure within the bypass conduit is below a predetermined pressure level, said second piston means including a low pressure piston movable between an alarm position and a no alarm position; and
(e) bypass valve means for allowing fluid to flow from the inlet conduit into the bypass conduit whenever the fluid pressure within the inlet conduit is above the fluid pressure within the bypass conduit by a second differential level which is greater than the first differential level, said bypass valve means being mounted on said sealing piston.

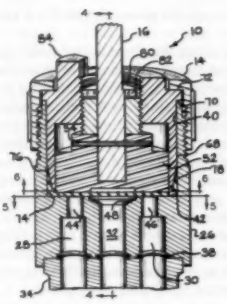


4,423,752

ANTI-SCALD MIXING VALVE

John Psarouthakis, Ann Arbor, Mich., assignor to J. P. Industries, Inc., Ann Arbor, Mich.

Filed Dec. 22, 1980, Ser. No. 218,484
Int. Cl.³ F16K *11/06*
U.S. Cl. 137—625.41 **8 Claims**



1. A mixing valve comprising:
a body having two inlet passages, an outlet duct, and a valve cavity including a generally circular valve seat disposed therein with the outlet duct and the inlet passages terminating in an outlet port and two spaced inlet ports to said valve seat,
a generally cylindrical closure member rotatable about its axis and fitted within said body, said closure member having one end surface overlying said valve seat so as to normally cover and seal said inlet ports and prevent flow through said valve in a closed position,
said closure member end surface having a recess formed therein and located such that upon rotation of said closure member from said closed position through a continuum of open positions said recess progressively and selectively overlies said inlet ports to provide a mixing of flow through said valve varying from flow only from a first of said inlet ports to flow only from the second of said inlet

ports, said recess overlying said outlet port in each of said open positions to provide fluid communication between said outlet port and said inlet ports and to provide mixing of fluid when both said inlet ports are open simultaneously, a flexible diaphram member positioned between said closure member and said valve seat to enhance sealing between said closure member and said valve seat, said diaphram member being resiliently deformable into said recess in response to pressure of fluid in said inlet passages in said open positions, and

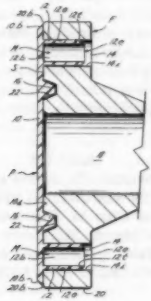
means for rotating said closure member about its axis between said closed and open positions.

4,423,753

FLANGE PROTECTOR

John S. Smith, and Donald R. Rogers, both of 809 Kansas, South Houston, Tex. 77587

Filed Aug. 16, 1982, Ser. No. 408,136
Int. Cl.³ B65D *59/06*
U.S. Cl. 138—89 **2 Claims**



1. A flange protector adapted for attachment to a flange of the type having a machined surface, an annular edge and a plurality of bolt holes, the bolt holes extending through the flange, comprising:

a circular shaped cover of flexible material having an outer annular beveled edge;

said cover having one side formed to conform to the shape of the machined surface of the flange and extending over and closing the upper ends of the bolt holes and having said annular beveled edge disposed at the annular edge of the flange so that the cover engages the entire machined surface and the annular beveled edge inhibits inadvertent displacement of the cover from the flange;

a plurality of fastening means extending from said one side of said cover for frictionally engaging the inner wall of bolt holes in a flange to retain said one side of said cover in engagement with the machined surface of the flange; and,

each of said fastening means includes:

an elongated tubular shank extending from said cover to an open end;

said tubular shank being hollow substantially from said cover to said open end; and,

said tubular shank having a shorter length than the length of the bolt holes extending through the flange.

4,423,754

CUP TYPE PIPELINE INFLATION ANCHOR

Ernest E. Carter, Jr., Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

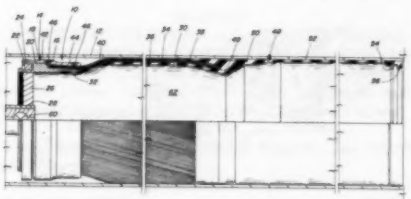
Filed Feb. 22, 1982, Ser. No. 350,930
Int. Cl.³ F16L *55/12*
U.S. Cl. 138—93 **5 Claims**

1. An inflation anchor adapted to travel through the interior of a conduit in an uninflated state and to seal the bore thereof upon inflation, comprising:

a shoe assembly including an annular shoe base, an annular shoe wedge threaded to said shoe base and a disc within said shoe base and fixed thereto;

a thin tubular elastomeric bladder having a leading end and a trailing end, said leading end being bonded to the interior of said shoe base;

at least two layers of calendered metal cable surrounding said tubular elastomeric bladder substantially to its fullest longitudinal extent, each layer of said metal cable having a leading end and a trailing end and being laid on a bias to the other layer and to the axis of said inflation anchor,



both of said layers being clamped between said shoe base and said shoe wedge at their said leading ends; and

an elastomeric cup overlapping said trailing ends of said bladder and said cable layers, said elastomeric cup being bonded to both, said elastomeric cup having a relatively thick annular wall proximate to and surrounding said bond, and a substantially thinner and flexible annular wall trailing therefrom, said thinner and flexible annular wall flaring outwardly to a trailing edge of relatively greater thickness which trailing edge possesses at least one reinforcing annular rib therein, said annular rib adapted to prevent collapse of said trailing edge of said thinner and flexible annular wall.

4,423,755

PAPERMAKERS' FABRIC

Charles E. Thompson, Raleigh, N.C., assignor to Huyck Corporation, Wake Forest, N.C.

Filed Jan. 22, 1982, Ser. No. 341,744
Int. Cl.³ D03D *15/00*; **D21F** *1/10*
U.S. Cl. 139—383 A **13 Claims**

1. A papermakers' single layer fabric comprising warp and weft yarns interwoven together to define the central plane of said fabric and to provide a repeating pattern of warp floats at the paper support surface, and floater yarns interspaced between and parallel to said weft yarns, said fabric being free of any warp interlacing between any one of said floater yarns and a next adjacent weft yarns.

4,423,756

WEFT INSERTER FOR WEAVING MACHINES

Raymond Dewas, 120, Boulevard de Quentin, Saint 8000 Amiens, France

Filed Apr. 16, 1982, Ser. No. 368,978
Claims priority, application France, Jan. 31, 1979, 79 02554
Int. Cl.³ D03D *47/20*
U.S. Cl. 139—448 **6 Claims**

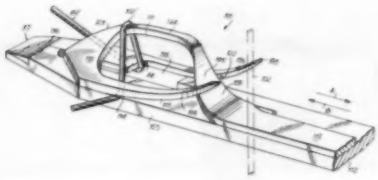
1. A moving weft inserter for a weaving machine including

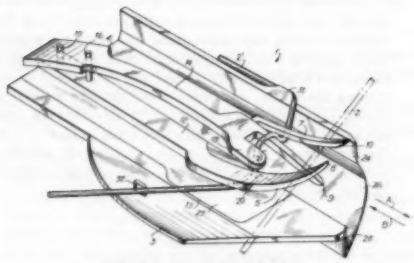
a stationary weft tensioned transverse to the path of the moving inserter, said inserter comprising:

a rigid head,

first, second, and third weft ramps on said head positioned in approximate parallel relationship, said second ramp being located between said first and third ramps, said first, second, and third ramps having respective first, second, and third ramp tips, said first and third ramp tips being positioned at an elevation above said second ramp tip, said first and third ramps being downwardly inclined and said second ramp being upwardly inclined relative to said respective tips and to said head,

said second weft ramp including a first weft guiding portion and said third weft ramp including a second weft guiding portion, and





resilient weft gripping means including a resilient first weft ramp, said gripping means being formed by the converging lower surface of said first weft ramp and the upper surface of a rigid lower member mounted on said head,

said weft being movable relative to said moving inserter from a first weft position to a second weft position,

said first, second, and third weft ramps defining a weft seizing and directing means for seizing said weft in said first weft position wherein said weft is mounted transverse to the movement of said inserter at an elevation below said first and third ramp tips and above said second ramp tip, and for directing said weft downward under said first and third ramps and upward over said second weft ramp to a position of seizure by said gripping means and to said first and second guiding portions wherein said weft ceases movement relative to said inserter and is positioned in a state of tension by said inserter.

4,423,757

DEVICE FOR FORMING CLOSABLE WIRE SPRING SNAPS

Dewey O. Broberg, Jr., Long Grove, Ill., assignor to Du-Bro Products, Inc., Wauconda, Ill.

Filed Apr. 26, 1982, Ser. No. 371,678

Int. Cl.³ B21F *0/00*

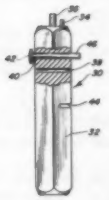
U.S. Cl. 140—123 **22 Claims**

1. A device for forming closable spring snaps from wire, comprising:

a unitary elongated body having a longitudinal axis;

means on said body for forming an eyelet at one end of a length of wire and for forming an open latch loop at an opposite end of the length of wire; and

means on said body for properly positioning and facilitating bending said length of wire intermediate the ends thereof with the wire bent back toward itself whereby said open latch loop is engageable with said one end of the wire inwardly of said eyelet to form a closable spring snap,



including means on one side of said body for positioning and holding said open latch loop and means on said one side of the body protruding outwardly therefrom and longitudinally axially spaced from said means for positioning and holding said open latch loop and about which the length of wire is bent back onto itself to properly position the loop engageable with the wire inwardly of said eyelet.

4,423,758

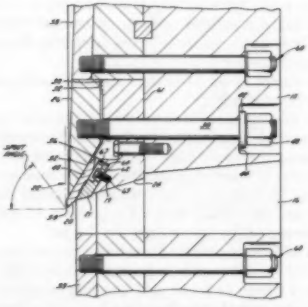
DISC TYPE WOOD CHIPPER KNIFE HAVING POSITION ADJUSTING SERRATIONS

Jack R. Haller, and Dino M. Demopoulos, both of Wausau, Wis., assignors to Murray Machinery, Inc., Wausau, Wis.

Filed Feb. 25, 1982, Ser. No. 352,246

Int. Cl.³ B27C *7/10*; B02C *18/18*

U.S. Cl. 144—176 **8 Claims**



7. Disc-type apparatus for chopping material comprising:

a disc having spaced apart surfaces and rotatable about an axis perpendicular to said surfaces, said disc having at least one radially disposed elongated opening extending therethrough between said surfaces;

a disc plate disposed adjacent a surface of said disc and having a radially disposed elongated opening extending through said disc plate in registry with said opening in said disc but of greater width so as to define an elongated recess wherein a portion of said surface of said disc is exposed;

a wear plate disposed adjacent said disc plate and having a radially disposed elongated opening extending through said wear plate in registry with said opening in said disc plate;

means for securing said disc, said disc plate and said wear plate together;

an elongated knife seat disposed in said recess and bearing against the exposed portion of said surface of said disc and against a side of said opening in said disc plate, said knife seat comprising an outer surface having a projection thereon and an outwardly facing angularly disposed elongated groove;

means for rigidly securing said knife seat to said disc and including a screw extending through a hole in said knife seat and into a threaded hole in said disc;

an elongated counter knife disposed in said groove and having a knife-engaging surface with a plurality of protruding serrations extending therealong, said counter knife further comprising at least one elongaged screw-receiving slot extending therethrough, said slot having a countersunk recess extending inwardly from said knife-engaging surface;

a cap screw in said slot and engaged in a threaded hole in said knife seat for rigidly but adjustably securing said counter knife to said knife seat, each cap screw having its head disposed in said countersunk recess associated with said slot;

shim means disposed between said counter knife and the end of said groove for determining the rearwardmost position of said counter knife relative to said knife seat;

a knife clamp disposed adjacent and bearing against a portion of said knife seat and having a threaded hole therein, said knife clamp comprising a flat knife engaging surface;

a knife having two cutting edges, a flat outer surface, and an inner surface having inwardly extending serrations thereon, said knife being disposed between said knife engaging surface of said counter knife and said flat knife engaging surface of said knife clamp, said serrations on said knife engaged with said serrations on said counter knife; and

an elongated stud threaded at opposite ends and extending through a hole in said disc, through a hole in said knife seat and into said threaded hole in said knife clamp, said stud having a nut at its other end for securing said knife clamp against said knife seat and for clamping said knife between said knife clamp and said counter knife.

4,423,759

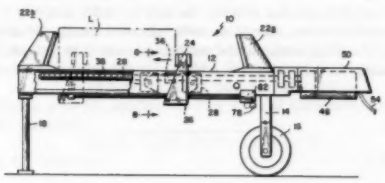
ELECTRICALLY POWERED LOG SPLITTER

Richard E. Seeger, Kittery Point, Me., assignor to Armatron International, Inc., Melrose, Mass.

Filed Oct. 30, 1981, Ser. No. 316,885

Int. Cl.³ B27L *7/00*

U.S. Cl. 144—193 R **16 Claims**



8. In a double acting log splitter having a longitudinally extending frame, a pair of first splitting components spaced along the length of and fixed to said frame, a second splitting component mounted on a carriage which is movable on said frame in opposite directions between said first splitting components, and a reversible drive motor adapted to be connected to and to be powered by an electrical power source, said drive motor being operable to propel said carriage in said opposite directions, the improvement comprising:

a control switch electrically connected between said power source and said drive motor, said switch having a first closed setting at which said drive motor is energized by said power source to propel said carriage in one direction towards one of said first splitting components, a second closed setting at which said drive motor is energized by said power source to propel said carriage in the opposite direction towards the other of said first splitting components, and a third normally open setting at which said drive is deenergized to halt carriage movement;

and operating means for manually adjusting said switch from said third normally open setting to either of said first or second closed settings, said operating means being additionally operative in response to movement of said carriage to adjust said switch from either of said first or second closed settings, to said third normally open setting in order to limit the movement of said carriage in either of said directions.

4,423,760

TIRE TREAD WITH ZIG-ZAG GROOVES HAVING GROOVE SIDEWALLS OF VARYING DEGREES OF SUPPORT

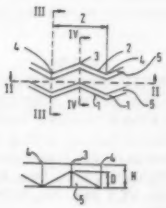
Barry W. Treves, Walsall, and Ian Kemp, Tamworth, both of England, assignors to Dunlop Limited, London, England

Filed Jun. 3, 1982, Ser. No. 384,496

Claims priority, application United Kingdom, Jun. 12, 1981, 8118219

Int. Cl.³ B60C *11/06*

U.S. Cl. 152—209 R **19 Claims**



1. A tire tread comprising an elongate strip having a pattern formed in that surface which is intended to contact the ground in use of a tire incorporating the tire tread wherein the pattern includes a continuous or discontinuous zig-zag groove extending generally longitudinally of the strip, the groove comprising two sidewalls, one on each side of the groove, each sidewall comprising straight or substantially straight portions, each portion of which extends at an acute angle to the length of the strip, and a buttress supporting a part of at least one of the portions, the height of the buttress varying along the portion to provide a progressively increasing degree of support thereto, a minimum height and thus a minimum degree of support being provided at or adjacent to that end of the portion extending into the groove, and a maximum height and thus a maximum degree of support being provided at or immediately adjacent to that end of the portion extending into the tread and wherein the maximum height of the buttress is less than the groove depth.

4,423,761

LOWER BEAD LOOSENER STROKE ADJUSTMENT

John F. Wood, Brentwood, Tenn., assignor to Sun Electric Corporation, Crystal Lake, Ill.

Filed Mar. 10, 1982, Ser. No. 356,764

Int. Cl.³ B60C *25/08*

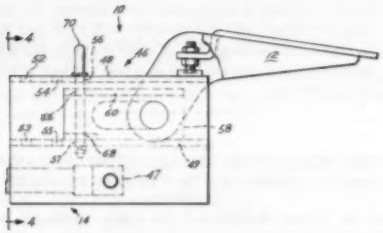
U.S. Cl. 157—1.28 **3 Claims**

1. In a tire changing machine of the type having a bead-loosening shoe driven by a cylinder, an improved means for adjustably securing said bead-loosening shoe thereto comprising, in combination:

a channel secured to said cylinder so as to move therewith,

said channel defining at least two pairs of adjustment apertures;

a connector adapted to matingly and slideably be received by said channel, said connector defining a pair of locking apertures adapted to substantially align with said pairs of adjustment apertures as said connector moves within said channel; and



a locking pin adapted to engage said channel and said connector through said adjustment apertures and said locking apertures, respectively, and thereby lock said connector with respect to said channel;

said bead-loosening shoe being secured to and extending from said connector, whereby the stop position of said shoe is set by selection of said adjustment apertures.

4,423,762

METHOD FOR THE PRODUCTION OF A METAL CASTING MOULD HAVING A RISER AND A CAVITY FORMER AND RISER SLEEVE FOR USE THEREIN

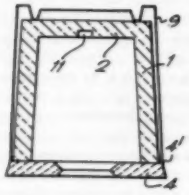
Gerd Trinkl, and Helmut Schopp, both of Borken, Fed. Rep. of Germany, assignors to Foseco International Limited, England

PCT No. PCT/GB80/00074, § 371 Date Jan. 22, 1981, § 102(e) Date Jan. 22, 1981, PCT Pub. No. WO80/02658, PCT Pub. Date Dec. 11, 1980

PCT Filed Apr. 28, 1980, Ser. No. 230,956

Int. Cl.³ B22C *9/08*

U.S. Cl. 164—37 **7 Claims**



1. A method for the production of a metal casting mould of particulate material, said mould having a mould cavity to produce said metal casting and a riser cavity being in communication with said mould cavity with said riser cavity permitting insertion and gripping of a riser sleeve, said riser sleeve having an opening in communication with said mould cavity, said riser sleeve further having an outside diameter taper such that the outside diameter of the riser sleeve adjacent the mould cavity is greater than the outside diameter of the riser sleeve at the end remote from the mould cavity, said method involving providing a riser cavity former having a taper complementary to said riser sleeve taper, said former having at least one vertically extending recess, locating said cavity former in a body of particulate moulding material, said cavity former having been made oversize relative to the riser sleeve to be received in the cavity, compacting the particulate moulding material about the cavity former and removing said cavity former to form said riser cavity in said moulding material, and wherein said riser cavity has at least one inwardly projecting vertically extending rib-like formation of moulded material for gripping the riser sleeve when received therein.

4,423,763

COMPACT INJECTION ASSEMBLY FOR DIE CASTING MACHINES

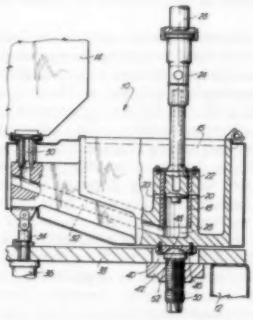
Guido Perrella, Senneville, Canada, assignor to DBM Industries Limited, Quebec, Canada

Filed Apr. 29, 1981, Ser. No. 258,814

Claims priority, application Canada, Jan. 20, 1981, 368889

Int. Cl.³ B22D *17/04*; B29F *1/00*

U.S. Cl. 164—316 **3 Claims**



1. A compact injection assembly for die casting machines, said compact assembly including a small pot for retaining a molten casting metal therein and delivered thereto from a remote source; a cylinder having upper and lower ends integrally formed in said pot and a piston mounted for reciprocation therein, a shot chamber in the lower end of the cylinder, a nozzle and a passageway interconnecting the shot chamber and nozzle; and means connectable to said die casting machine for supporting said assembly at a single point in close proximity to the dies of said machine, said single point of support comprising a vertically adjustable bolt having a spherical head thereon and a socket member on said assembly directly below said cylinder for receiving said spherical head; the highest level of casting metal in said pot being lower than the runner of a casting formed in said machine.

4,423,764

BINDER FOR PREPARING IMPROVED CORES AND MOLDS

Charles E. Seeney, Brazil; John F. Kraemer, and Janis Ingebrigtsen, both of Terre Haute, all of Ind., assignors to International Minerals & Chemical Corp., Terre Haute, Ind.

Filed Jan. 25, 1982, Ser. No. 342,314

Int. Cl.³ B22C *1/18*

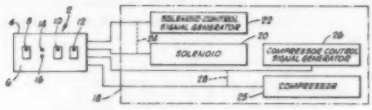
U.S. Cl. 164—528 **10 Claims**

1. An improved binder composition for a foundry aggregate comprising aluminum dihydrogen phosphate and a hardener therefor selected from the group consisting of ammonium polyphosphate, potassium polyphosphate, potassium olivine phosphate, volcanic ash, sodium silicate, phosphoric acid and mixtures thereof.

4,423,765
APPARATUS FOR REDUCING HEATER AND AIR CONDITIONING ENERGY CONSUMPTION

Paul N. Hildebrand, Oklahoma City, Okla., assignor to Orange Energy Systems, Inc., Lawton, Okla.

Filed Jun. 1, 1982, Ser. No. 384,017
Int. Cl.³ F23N *5/20*; H03K *3/17*
U.S. Cl. 165—12 **4 Claims**



1. An apparatus for controlling the operation of a heater element which has a heater element control wire electrically connected between said heater element and a heater control signal generator means and the operation of an air conditioner cooling element which has a cooling element control wire electrically connected between said air conditioner cooling element and an air conditioner control signal generator means, said apparatus comprising:

first switch means connected in electrical series with said heater element control wire between said heater element and said heater control signal generator means;

second switch means connected in electrical series with said cooling element control wire between said air conditioner cooling element and said air conditioner control signal generator means;

switch control means for controlling the opening and closing of said first and second switch means, said switch control means including the timer means for periodically opening and closing said first or second switch means, said timer means including:

first integrated circuit timer means for providing a first output signal having a selectable period, said first integrated circuit timer means having a master reset input; and

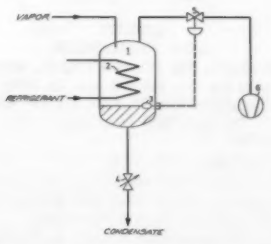
second integrated circuit timer means, responsive to said first output signal, for providing a second output signal having a selectable period, said second output signal being communciated to said master reset input; and

wherein said first and second switch means are responsive to said second output signal.

4,423,766
VACUUM CONDENSATION APPARATUS

Karl-Heinz Bernhardt, and Helmut Strzala, both of Braunfels, Fed. Rep. of Germany, assignors to Arthur Pfeiffer Vakuumtechnik Wetzlar GmbH, Asslar, Fed. Rep. of Germany

Filed Nov. 12, 1981, Ser. No. 320,511
Claims priority, application Fed. Rep. of Germany, Nov. 18, 1980, 3043456
Int. Cl.³ F28F *13/00*; F28B *11/00*
U.S. Cl. 165—13 **3 Claims**

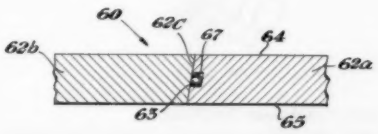


1. Vacuum condensation apparatus for condensing vapors at reduced pressure comprisng a cooled vapor condenser defining therein a vapor chamber and including a vapor supply line, liquid level sensor means within said vapor condenser for sensing the level of liquid therein, vacuum pump means connected with said vapor chamber of said condenser for drawing vapor therefrom, control valve means connected between said vapor chamber and said vacuum pump means for controlling drawing of vapor from said vapor chamber, and a metering device for controlling the outflow of liquid condensate from said condenser, said liquid sensor means being connected with said control valve means to close said control valve means when the liquid level in said condenser rises above a predetermined level and to open said control valve means when said liquid level falls below said predetermined level.

4,423,767
FLAT PLATE HEAT EXCHANGE APPARATUS

Robert A. Hay, II, Midland, and Charles C. Crugher, III, Beaverton, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Feb. 11, 1983, Ser. No. 465,726
Int. Cl.³ F28F *9/22*; F28D *1/00*
U.S. Cl. 165—81 **4 Claims**



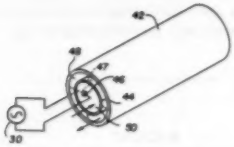
1. In a heat exchange vessel, the vessel comprising an axis extending from a first end to a second end, a foraminous feed tube disposed generally coaxially with the axis of the vessel at least adjacent the first end, a first annular flat plate heat exchanger disposed coaxially about the foraminous tube; at least a second flat plate heat exchanger disposed externally to the first flat plate heat exchanger and generally coaxial therewith; means to supply a first heat exchange fluid to the first flat plate heat exchanger; means to supply a second heat exchange fluid to the second flat plate heat exchanger, the first and second flat plate heat exchangers being disposed within the vessel, the vessel having a product discharge port at the second end of the vessel with the further limitation that each of the flat plate heat exchangers comprise a plurality of generally annular flat plates, each having a centrally disposed aperture; the flat plate-like member assembled perpendicularly to the axis of the vessel with a space between each of the individual plate members; the plate members being positioned in close proximity to one another to provide a flow pattern between adjacent members, the plate members being in spaced apart relationship; a plurality of heat exchange conduits passing through said plate-like members to thereby permit circulation of heat exchange fluid through said conduits, wherein each of the flat plate heat exchangers has a common fixed tube sheet and a common floating tube sheet supported primarily by tubes passing through the flat plate heat exchanger, the improvement which comprises providing a floating tube sheet, the floating tube sheet comprising a first generally annular outer portion, a second generally discoidal inner portion, a frustoconical interface between the first and second floating tube sheet portions, the frustoconical interface being projectible to a cone having an apex which lies approximately at the intersection of a face of the fixed tube sheet which is adjacent a floating tube sheet and the intersection of said plane with the axis of generation of the flat plate heat exchangers.

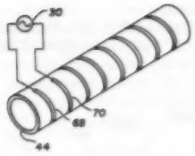
4,423,768

PIEZOELECTRIC POLYMER HEAT EXCHANGER

Seymour Edelman, Silver Spring, Md., and Lowell D. Ballard, Sterling Park, Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Division of Ser. No. 30,966, Apr. 17, 1979. This application Apr. 20, 1982, Ser. No. 370,027
Int. Cl.³ F28D 11/06
U.S. Cl. 165—84 4 Claims





1. A heat exchanger comprising:

at least one hollow cylindrical structure comprising two fluid conductive channels through which respective relatively warm and cold fluids are led for exchanging appreciable amounts of heat therebetween;

the said fluid conductive channels being completely separated, being formed in said cylindrical structure by presence of a tubular, heat conductive partition means, one channel being within, and one channel surrounding said tubular means, within said cylindrical structure, said heat conductive partition means comprising piezoelectric polymer material;

first and second helical type electrode means formed in a double helix directly on the said tubular partition means, on the same side of said partition, electrically coupled at one of the electrode means mutually same ends, and wound screw thread about said tubular means, connected to an alternating current electrical signal piezoelectrically driving said partition means to periodically undulate; and

a signal source for the said alternating current signal being provided for delivering a signal at a particular frequency equal to the natural frequency of resonance of transverse vibration of the said partition piezoelectric material so as to generate a standing wave pattern therein,

the resonance factor enhancing the heat flow action across said partition compared to non resonant undulation.

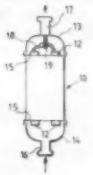
4,423,769

TURBULATOR RETAINING MEANS

Patrick Cadars, Montigny le Bretonneux, France, assignor to Valeo, Paris, France

Filed Mar. 9, 1982, Ser. No. 356,476
Claims priority, application France, Mar. 23, 1981, 81 05768
Int. Cl.³ F28F 9/24
U.S. Cl. 165—109 T 13 Claims

1. Turbulator retaining means in a heat exchanger comprising a nest of tubes for liquid circulation and a plurality of turbulators inserted into the tubes of the nest, each turbulator having two substantially parallel leg portions inserted into two tubes of the nest and a curved U-shaped mid-portion connecting the leg portions to each other, said mid-portion being outward of the tubes, said turbulator retaining means comprising stops extending on either side of the said U-shaped mid-



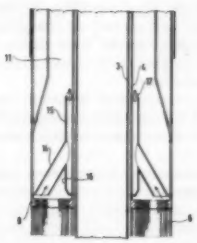
portion of each turbulator to restrict movement of said turbulator out from the tubes under the effect of the liquid flowing through the tubes.

4,423,770

DEVICE FOR REDUCING THERMAL STRESSES ON A HEAT EXCHANGER

Pierre Pouderoux, Meudon la Foret, and Jean-Pierre Peyrelongue, Pontchartrain, both of France, assignors to Stein Industrie, Villacoublay, France

Filed Jun. 1, 1981, Ser. No. 268,869
Claims priority, application France, Jun. 2, 1980, 80 12189
Int. Cl.³ F28F 9/22
U.S. Cl. 165—134 R 5 Claims



1. A device for reducing thermal stresses on a heat exchanger between two counterflow-circulating liquid alkali metal circuits comprising an annular cylindrical nest of tubes surrounding an axial pipe for the introduction of the liquid alkali metal to be heated and extended by an annular pipe for discharging the heated liquid alkali metal, wherein it comprises in the said annular pipe for discharging the heated liquid alkali metal means for radially homogenizing the temperature of the alkali metal, said means comprising pipes which, at the outlet of the nest of tubes, tap a part of the relatively hotter alkali metal flowing along the outer periphery of the annular pipe to bring it into its flow area closest to the axis.

4,423,771

HEAT EXCHANGER

Charles V. Frederick, Rte. #5, New Virginia, Iowa 50210

Continuation of Ser. No. 934,867, Aug. 18, 1978, abandoned. This application Jan. 26, 1981, Ser. No. 228,252
Int. Cl.³ F28D 1/04; F28F 1/32
U.S. Cl. 165—151 3 Claims

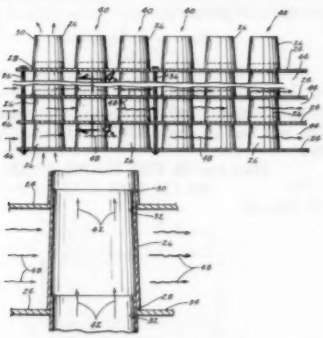
1. A heat exchanger comprising

a plurality of spaced apart parallel flat plates having a plurality of apertures therein, with each aperture dwelling entirely within the thickness of said plates,

a plurality of hollow frusto-conically shaped cone members having a larger base end and a smaller opposite end, said cone members having straight tapered side walls that

uniformly decrease in diameter from said base end to said opposite end, said cone members being inserted in the apertures of said plates and being of such relative size to be tightly embraced by the peripheries of said apertures whereby said cone members only frictionally retentively engage said peripheries of said apertures,

the opposite ends of said cones in each of said plates being tightly nested and stacked in the base ends of the cones in the next adjacent plate whereby said opposite ends of said cones only frictionally retentively engage said base ends of said cones in the next adjacent plate,



and means for fixedly securing said plates in parallel relation to bind said cone members in stacked relation with said cones in each of said plates tightly engaging the apertures of said plate and being tightly nested in the base end of the cones in the next adjacent plate, said means for fixedly securing said plates comprising mechanical securement means interconnecting said plates remote from said cones,

said stacked cone members forming a plurality of stacks generally perpendicular to said spaced apart plates, and

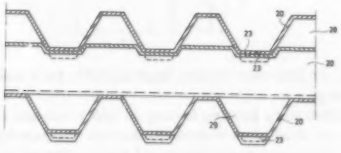
said spaced apart plates forming a plurality of air passageways between said plates with said stacks within said passageways.

4,423,772

PLATE HEAT EXCHANGER

Jons A. Dahlgren, Lund, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden

Filed Aug. 19, 1981, Ser. No. 294,287
Claims priority, application Sweden, Aug. 28, 1980, 8006020
Int. Cl.³ F28F *3/00*
U.S. Cl. 165—166 **3 Claims**



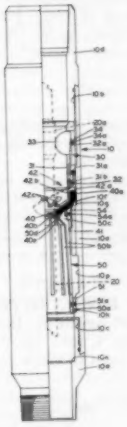
1. A plate heat exchanger comprising a plurality of generally rectangular plates arranged adjacent to each other to form a flow passage between each pair of adjacent plates, each of said plates having a turbulence-generating corrugation pattern of alternating ridges and grooves which on adjacent plates extend in different directions, the grooves on one side of each plate forming corresponding ridges on the other side of said plate, each ridge on one side of each plate crossing and abutting a plurality of ridges on the opposing side of an adjacent plate to form interplate supporting areas spaced along the length of said each ridge, said supporting areas alternating with unsupported areas spaced along the length of said each ridge, the exchanger being characterized in that in some of said flow passages at least one of the plates defining the passage has said supporting areas recessed in a lower plane in ridges of said one plate, whereby the volumes of said some flow passages are reduced relative to the volumes of the other passages.

4,423,773

SINGLE ACTING SUBTERRANEAN WELL VALVE ASSEMBLY WITH CONDUIT FLUID STRIPPING MEANS

Gregg W. Stout, Montgomery, Tex., assignor to Baker International Corporation, Orange, Calif.

Filed Jul. 17, 1981, Ser. No. 285,220
Int. Cl.³ E21B *34/12, 43/04*
U.S. Cl. 166—51 **13 Claims**



1. A valve for closing a well conduit comprising, in combination: a tubular housing threadedly insertable in the well conduit; an annular elastomeric valve seat having its outer periphery sealingly engaged with the bore of said housing; a valve head pivotally mounted in said housing for movement into sealing engagement with the inner periphery of said annular elastomeric valve seat; an annular metallic member mounted directly above said annular elastomeric valve, the inner peripheral portion of said annular metallic member comprising a plurality of circumferentially spaced radial fingers overlying the radially medial portion of said annular elastomeric valve seat, said radial fingers being pushed downwardly and outwardly by the insertion movement of a tubing string through said housing to assume a substantially vertical position and radially shear the inner periphery of said annular elastomer valve seat to permit said valve head and the tubing string to pass downwardly therethrough.

4,423,774

METHOD AND APPARATUS FOR POSITIONING A SAFETY VALVE SUB FOR CONNECTION IN A THREADED TUBULAR MEMBER

Joe Mefford, 6042 Cheena, Houston, Tex. 77096

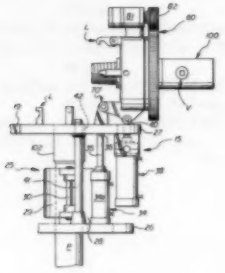
Filed Jun. 3, 1981, Ser. No. 270,020
Int. Cl.³ E21B *17/02*
U.S. Cl. 166—77.5 **11 Claims**

1. In a well tool adapted to be supported out of the way during well bore operations, but movable to adjacent an upwardly extending tubular well bore member for connecting a sub carried by the well tool to the upper end of the tubular member, the invention comprising:

a. releasable means engageable about the upwardly extend-

ing tubular member to releasably secure the well tool in position adjacent the end thereof;

b. additional means pivotally connected with said releasable means, said additional means including support means for the sub and rotatable means for rotating the supported sub to threadedly connect it with the tubular member;



c. means to secure said releasable and additional means in axial alignment while threadedly connecting the sub with the tubular member; and

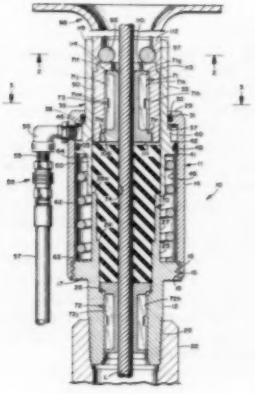
d. means to move said rotatable means and supported sub longitudinally relative to said releasable means when said releasable means is engaged about the tubular member to threadedly engage the sub with the tubular member.

4,423,775

LINE STRIPPER

James A. Wilson, 2039 Amelia St., Dallas, Tex. 75235

Filed Jun. 4, 1981, Ser. No. 270,252
Int. Cl.³ E21B *33/08*
U.S. Cl. 166—84 **2 Claims**



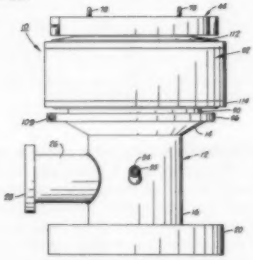
1. A safety sleeve for a line stripper having a tubular body connectable to and in vertical axial alignment with a flow conductor through which a line may move longitudinally into and from the flow conductor, a yieldable tubular packing element positionable about the line and in the body; piston means movable longitudinally relative to the body for compressing the packing element into stripping engagement with the line, and means for introducing fluid pressure into said body for moving said piston means to compress said packing element; said safety sleeve being connectable to said stripper and extending upwardly of said stripper for limiting the radius of flexure of the line if the position of the line above the stripper is displaced laterally from vertical longitudinal alignment with the stripper, said safety sleeve having a bottom cylindrical portion connectable to said stripper, and an upwardly and outwardly extending annular guide portion integral with said cylindrical portion, said guide portion providing an annular arcuate surface curving upwardly and outwardly and being engageable by the line if the line above the stripper is displaced laterally relative to the stripper, such engagement of the guide surface limiting the radius of flexure of the line, said safety sleeve including an integral flange portion extending outwardly from said guide portion in a plane perpendicular to the longitudinal axis of said cylindrical portion, said flange extending outwardly of said stripper.

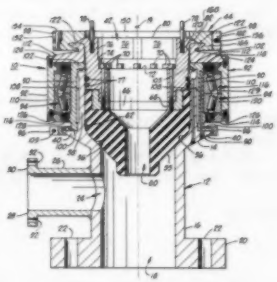
4,423,776

DRILLING HEAD ASSEMBLY

E. DeWayne Wagoner, 4302 St. Thomas, Oklahoma City, Okla. 73120, and Earl D. Owen, 13854 E. Linvale, Aurora, Colo. 80014

Filed Jun. 25, 1981, Ser. No. 277,137
Int. Cl.³ E21B *33/03*
U.S. Cl. 166—84 **32 Claims**





1. An improved drilling head assembly for a wellbore, comprising:

a stationary housing having an upper end and a lower end, an axial bore extending through the housing from the upper end to the lower end and configured to receive the extension therethrough of a rotatable driving member, the housing having an inner sealing surface;

stripper means disposable within the axial bore for forming a fluid passage seal between the driving member extended through the axial bore and the inner sealing surface of the housing; and

stripper support means removably supported at the upper end of the housing for supporting the stripper means so that the stripper means is rotatable with the driving member while sealingly engaging the inner sealing surface of the housing, the stripper support means comprises a head assembly characterized as comprising:

an inner skirt member configured to be disposed about the exterior of the housing;

clamping means for removably securing the inner skirt member to the housing;

an outer bearing housing assembly extending about the inner skirt member;

bearing means for attaching the bearing housing to the inner skirt member so that the outer bearing housing rotates about the inner skirt member; and

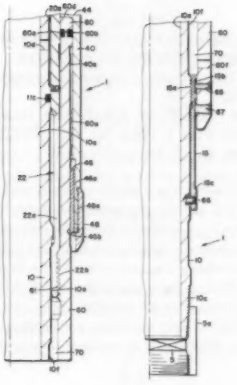
stripper clamp means for securing the stripper means to the outer bearing housing so that the stripper means and the outer bearing housing are rotatably responsive to the driving member when extended through the axial bore.

4,423,777

FLUID PRESSURE ACTUATED WELL TOOL

Albert A. Mullins, Humble, Tex., and Clifford H. Beall, Broken Arrow, Okla., assignors to Baker International Corporation, Orange, Calif.

Filed Oct. 2, 1981, Ser. No. 307,812
Int. Cl.³ E21B *3/02*
U.S. Cl. 166—120 **26 Claims**



1. A tool for use in subterranean wells having casing comprising: an inner elongated sleeve connectable to a control element; an intermediate sleeve surrounding said inner sleeve and slidable thereon; an annular slip mechanism surrounding said intermediate sleeve, abutment means on said intermediate sleeve abutting one axial end of said slip mechanism, said slip mechanism being radially expandable by relative axial movement of the other axial end thereof with respect to said intermediate sleeve; an outer sleeve surrounding a medial portion of said intermediate sleeve and defining an annular chamber therebetween; port means in said inner sleeve and said intermediate sleeve for supplying pressured fluid to said annular chamber; one axial end of said outer sleeve being connected to the other end of said slip mechanism, a first annular piston in said annular chamber abutting said other axial end of said slip mechanism for expanding same upon the application of fluid pressure to said annular chamber; a second annular piston in said annular chamber, means for detachable securement of said intermediate sleeve to said second annular piston, thereby applying an axial compressive force to said one end of said slip mechanism; means on the outer wall of said second piston for ratcheting engagement with the inner wall of said outer sleeve, thereby locking said intermediate sleeve and said slip mechanism in a radially expanded, set position engaging the casing wall; and shearable means for securing said inner sleeve in assembly with said second annular piston during run-in of the tool.

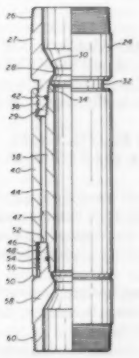
21. In a fluid pressure set packer for use in a subterranean well having casing, said packer having an inner sleeve connectible to a control element, a radially expandable slip mechanism surrounding said inner sleeve and actuated by an annular piston responsive to fluid pressure in said inner sleeve to move to a set position, plug means for blocking fluid flow through said inner sleeve to permit a substantial increase in fluid pressure in the tubing string and said inner sleeve, the improvement comprising an axial extension on the annular piston cooperating with said inner sleeve to define an annular fluid reservoir having a port communicating with the casing annulus, thereby filling said reservoir with annulus fluid, said reservoir being constructed and arranged to decrease in volume when fluid pressure is released from said tubing string and inner sleeve, permitting axial resilient relaxation of the control element and inner sleeve, the fluid passage area of said discharge port being selected to throttle the discharge of fluid from said reservoir and thereby damp the relaxation movement of said inner sleeve.

4,423,778

CONCENTRIC TUBING SEPARATION JOINT

Burton Goldsmith, Lawndale, Calif., assignor to Baker International Corporation, Orange, Calif.

Filed Sep. 28, 1981, Ser. No. 305,827
Int. Cl.³ E21B *29/00*
U.S. Cl. 166—134 **30 Claims**



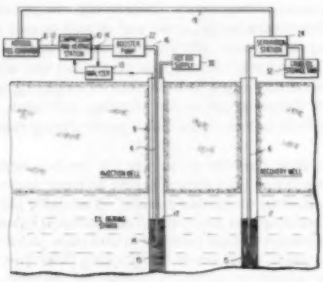
1. A separation joint incorporable in a tubular string in a subterranean well comprising: first and second coupling members attachable to said tubular string; a first tubular member in prestress tension attached at opposite ends there of to said first and second coupling members; and a second tubular member extending concentrically to said first tubular member secured to one of said coupling members and engaging the other of said coupling members to carry only compressive loads exerted through said first and second coupling members, said second tubular member being tension in said first tubular tubular member separates said tubular string at said separation joint.

4,423,779

OIL RECOVERY SYSTEM AND PROCESS

Arnold M. Livingston, 50 Division Ave., Millington, N.J. 07946

Filed Nov. 4, 1981, Ser. No. 318,177
Int. Cl.³ E21B *43/24, 43/40*
U.S. Cl. 166—250 15 Claims



1. A process for recovering oil from an oil bearing formation, comprising the steps of:

(a) injecting fine droplets of oil soluble chemicals as an aerosol fog of at least 500° F. of said chemicals into said oil-bearing formation through a downwell pipe, said droplets penetrating said formation dissolving said oil contained therein increasing said formation's permeability; and

(b) extracting said oil-soluble chemicals and any admixed or dissolved oil from said formation.

9. An apparatus for recovering oil from an oil bearing formation, comprising:

a thermal fog machine for producing an aerosol fog of droplets of an oil-soluble chemical of at least 500° F. for penetrating and dissolving said oil in said oil bearing formation;

means for injecting said fog into said formation; and

means for recovering said chemicals and any admixed or dissolved oil from said formation.

4,423,780

METHOD AND APPARATUS FOR FRACTURING HYDROCARBON-BEARING WELL FORMATIONS

Ronald J. Vigneri, 9 Leone Terr., Kinnelon, N.J. 07405, and Christopher J. Nickos, 839 Laurel Blvd., Lanoka Harbor, N.J. 08734

Filed May 19, 1981, Ser. No. 265,336
Int. Cl.³ E21B *43/26*
U.S. Cl. 166—308 23 Claims

1. The method for increasing the yield of hydrocarbons from an underground hydrocarbon bearing well formation by fracturing the formation, the formation being penetrated by a borehole having an opening at ground level, the method comprising of steps of:

a. placing and connecting a gas generator in position outside the well for supplying heated gas under pressure to the opening of the borehole;

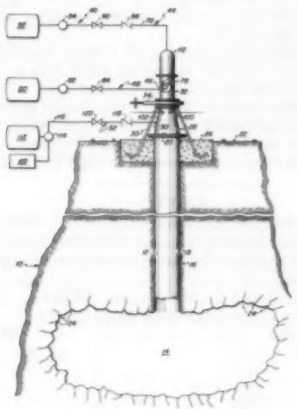
b. essentially sealing the connection between the gas generator and the borehole opening so as to enable the establishment of elevated pressures within the well;

c. operating the gas generator to inject gas into the well at a relatively high temperature, said high temperature being less than the thermal ignition temperature of the hydrocarbons in the formation;

d. increasing the pressure within the well to an elevated relatively high pressure by;

(1) discontinuing operation of the gas generator upon reaching an intermediate pressure;

(2) subsequently raising the pressure within the well to a further elevated pressure above the intermediate pressure; and



e. maintaining an elevated pressure in the well at least until the formation is fractured.

4,423,781

METHOD OF USING A SPACER SYSTEM IN BRINE COMPLETION OF WELLBORES

David C. Thomas, Tulsa, Okla., assignor to Standard Oil Company, Chicago, Ill.

Continuation of Ser. No. 136,228, Apr. 1, 1980, abandoned. This application May 3, 1982, Ser. No. 373,821
Int. Cl.³ E21B *21/00, 37/00*
U.S. Cl. 166—312 13 Claims

1. A method for completing a wellbore lined with casing and having cement in the annulus between the outer wall of the casing and the wall of the wellbore wherein a completion fluid is pumped into the casing to displace a fluid out of said casing, which comprises pumping a spacer system into said casing, to displace said fluid before pumping said completion fluid into said casing, said spacer system comprises a spacer fluid compatible with said fluid in said wellbore and having a viscosity such that said spacer fluid exists in laminar or plug flow during said pumping.

4,423,782

ANNULUS SAFETY APPARATUS

Michael L. Bowyer, Aberdeen, Scotland, assignor to Baker International Corporation, Orange, Calif.

Filed Oct. 2, 1981, Ser. No. 307,820
Int. Cl.³ E21B *34/08, 34/10*
U.S. Cl. 166—321 25 Claims

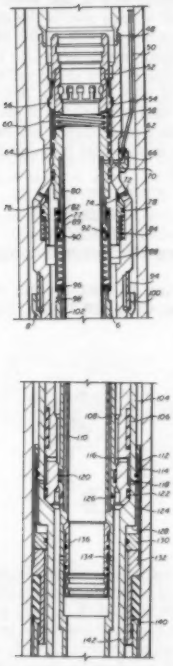
1. A valve assembly for use in controlling the flow in an axially extending fluid transmission conduit in a subterranean well to permit relatively greater flow downward in said conduit than upward in said conduit, said valve assembly comprising:

first shuttle valve means for opening said conduit in response to pressure from fluid in said conduit thereabove;

a bypass port in said first valve means having a flow area less than the flow area of said first valve means when opened in response to fluid pressure thereabove, said port permitting metered flow through said first valve means when said first valve means is closed; and

second surface controlled valve means in said conduit below said first valve means for opening said conduit in response

to a control signal other than the pressure of fluid in said conduit, said second valve means being manipulatable



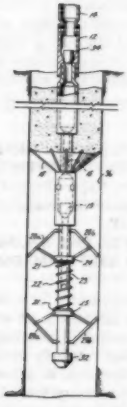
between the open and closed positions with said first valve means remaining in the open or closed positions.

4,423,783

METHOD FOR PLUGGING A WELL AND BRIDGE PLUG

James W. Haag, Marrero, La., assignor to Texaco Inc., White Plains, N.Y.

Filed Apr. 23, 1982, Ser. No. 371,170
Int. Cl.³ E21B *33/134*
U.S. Cl. 166—382 6 Claims



1. A method for plugging a well comprising,

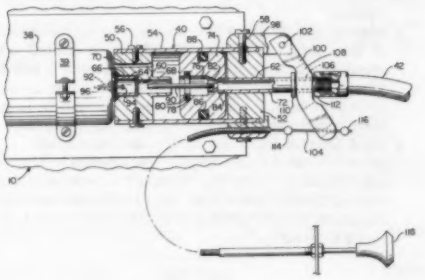
(a) extending two sets of dogs on a bridge plug for engaging the sides of the well by releasing an expandable means,
(b) generating a high pressure fluid in the bridge plug, and
(c) opening an elastic means with the high pressure fluid for releasing the expandable means for simultaneously extending both sets of dogs for engaging the well walls at the desired depth in the well.

4,423,784

VEHICLE FIRE EXTINGUISHER

Ralph A. Bolen, London, Ohio, assignor to John Sawyer, Cincinnati, Ohio

Filed May 6, 1981, Ser. No. 261,262
Int. Cl.³ A62C *35/12*
U.S. Cl. 169—62 9 Claims



1. In combination with a vehicle, a fire extinguisher operative in response to vehicle impact, comprising:
(a) a longitudinal housing secured to the vehicle, said housing having first and second end components, said first end component having a first fluid passage extending therethrough and being adapted to selectively communicate with a source of pressurized fire retardant;
(b) an inertial member disposed within said housing, said inertial member being reciprocally movable within a predetermined range from one of said first and second end components to the other in response to a time rate of change of velocity of the housing, said inertial member having a second fluid passage extending therethrough in selected fluid communication with said first fluid passage;
(c) an actuator secured to the inertial member, said actuator being extendable to said first fluid passage as the inertial member is moved toward the first end component;
(d) a valve disposed in the first fluid passage for controlling fluid flow from said source of pressurized fire retardant, said valve being movable to an open position by the actuator as the inertial member is moved toward the first end component;
(e) a nipple extending from the first end component, said nipple partially defining said first fluid passage and being sealingly and slidingly received by the second fluid passage when said inertial member moves to the first end component and
(f) a rigid conduit secured to the inertial member in fluid communication with the second passage, said rigid conduit being reciprocally movable through the second end component as the inertial member moves through the predetermined range.

4,423,785

LOAD CONTROL DEVICE FOR A WORKING TOOL OF A CONSTRUCTION VEHICLE

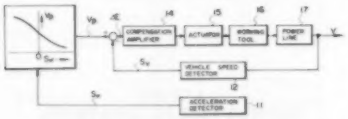
Keishiro Kurihara, Chigasaki; Tetsuya Nakayama, Fujisawa, and Masakazu Moritoki, Hiratsuka, all of Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed Jan. 7, 1981, Ser. No. 222,964

Claims priority, application Japan, Mar. 18, 1980, 55-34312; Mar. 25, 1980, 55-38085

Int. Cl.³ A01B *63/112*

U.S. Cl. 172—3 8 Claims



1. A load control device for a working tool which is mounted on a construction vehicle to excavate and carry earth, which comprises:

an acceleration detector for detecting acceleration of said vehicle;

a memory unit storing a characteristic curve representative of the relation of said acceleration to a desired vehicle speed at which a maximum work efficiency is provided, wherein said memory unit receives the output of the acceleration detector, and provides an output in response thereto representative of the desired vehicle speed;

a speed detector for detecting a vehicle speed; and

a control circuit for controlling a load applied to said working tool according to the difference between said desired vehicle speed which is read out of said memory unit and the actual vehicle speed as provided at the output of said speed detector.

4,423,786

SOIL CULTIVATING MACHINES

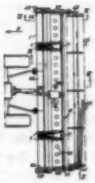
Cornelis ver der Lely, 7 Brüschenrain, Zug, Switzerland

Continuation of Ser. No. 954,783, Oct. 26, 1978, abandoned. This application Nov. 18, 1980, Ser. No. 207,878

Claims priority, application Netherlands, Nov. 1, 1977, 7711983

Int. Cl.³ A01B *33/06*

U.S. Cl. 172—49.5 10 Claims



1. A soil cultivating machine comprising a frame having an elongated transverse hollow-box-shaped portion including a U-shaped lower portion and an upper cover portion and a plurality of cultivating members supported on said box-shaped portion, said members being rotatable about upwardly extending axes defined by the longitudinal center lines of upwardly extending shafts, driving means comprising gear wheels on each of said shafts that are in mesh with each other, each said member comprising a unit including the said upwardly extending shaft that is journalled in spaced apart bearings, the said gear wheel on said shaft being disposed between said bearings and respective housings for said bearings, said respective housings being releasably fastened to said box-shaped portion and so arranged and constructed to close openings in the said cover portion and the bottom side of said lower U-shaped portion, said housing formed at least part of the corresponding cover portion and the said bottom side of the said lower U-shaped portion, said unit being insertable and/or removable as a unit from the bottom side of said U-shaped lower portion, said bearing housings of said unit being detachably secured by fastening means to said bottom side of said U-shaped portion and said cover portion respectively, said fastening means providing for releasing said bearing housings from outside of said box-shaped portion.

4,423,787

HARROW

Richard W. Steinberg, 1720 Collette Dr., North Mankato, Minn. 56001

Filed Aug. 10, 1981, Ser. No. 291,483

Int. Cl.³ A01B *33/02, 23/02*

U.S. Cl. 172—142 21 Claims

1. A harrow for use with an earthworking tool to work the soil adjacent the earthworking tool comprising: a clamp assembly mountable on the earthworking tool, said clamp assembly having a first member, a second member, and means adapted to clamp the first and second members on the earthworking tool, said first and second members having notches adjacent opposite ends and outwardly directed ears; a harrow means mounted on the clamp assembly for working the soil adjacent the earthworking tool, said harrow means having first and second coil spring means mounted on the first and second members of the clamp assembly and tine means connected to each of the first and second coil spring means for working the soil adjacent the earthworking tool, said first coil spring means being located in said notches adjacent one of the ears of the first and second members and surrounding first adjacent ends of the first and second members, said second coil spring means being located in said notches adjacent the other of the ears of the first and second members and surrounding second adjacent ends of the first and second members, and bar means connecting the first and second coil spring means adapted to engage the earthworking tool to limit rotation of the first and second coil spring means on said clamp assembly.

4,423,788

AGRICULTURAL FURROW FORMING APPARATUS DEPTH CONTROL

Edward L. Robinson, Jr., Naperville, and Lawerence D. Westerfield, Romeoville, both of Ill., assignors to International Harvester Co., Chicago, Ill.

Filed May 20, 1981, Ser. No. 265,513

Int. Cl.³ A01B *63/16*; B60S *9/00*

U.S. Cl. 172—427 6 Claims

1. A furrow forming apparatus for a planter unit comprising:

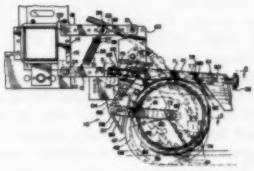
a planting unit frame adapted to be attached to a tool bar;

a furrow opening assembly including a pair of opposed, furrow forming discs rotatably mounted on said planting unit frame with the discs in substantial contact at the approximate point of entry into the soil and diverging rearwardly upwardly relative to the direction of travel, said furrow opening assembly having a lowermost point defining the bottom of an opened furrow;

a first gauge wheel support arm pivotally mounted on said planting unit frame, said support arm having a first gauge wheel rotatably mounted at one end thereof and disposed adjacent to said discs;

a second gauge wheel support arm pivotally mounted on said planting unit frame, said support arm having a second gauge wheel rotatably mounted at one end thereof and disposed adjacent said discs on the opposite side thereof from said first gauge wheel;

gauge wheel adjustment means mounted on said planter unit frame and operatively associated with said first and second gauge wheel support arms to control the height of said planting unit from the ground, said gauge wheel adjustment means including an equalizer bar mounted on a fixed pivot, the ends of said equalizer bar operatively interconnecting said first support arm and said second support arm,



said gauge wheel adjustment means having a first planting mode of operation in which movements of one gauge wheel within a predetermined normal range of planter operation, including operation on a level surface, are dependent on equal opposite movements of the other gauge wheel, and said furrow opening assembly penetrates the ground,

and a second adjustment mode in which the distance from said lowermost point of said furrow opening assembly to the planting unit frame is equal to the distance from the lowermost point of said gauge wheels to the planting unit frame; and

means for selectively holding the lowermost points of each of said gauge wheels in horizontal alignment with each other and with said lowermost point of said furrow opening assembly upon said gauge wheel adjustment means being in said adjustment mode.

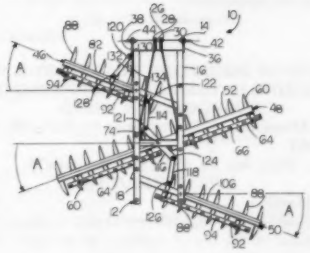
4,423,789

OFFSET DISC HARROW

Charles W. Anderson, and William L. Carlson, both of Kewanee, Henry County, Ill., assignors to Chromalloy American Corporation, St. Louis, Mo.

Filed Feb. 1, 1982, Ser. No. 344,558
Int. Cl.³ A01B *7/00*
U.S. Cl. 172—585 **9 Claims**

1. An agricultural implement for tilling soil comprising a support frame assembly having means associated therewith for coupling to a conventional towing vehicle, a first disc gang assembly pivotally mounted to the forward portion of said support frame assembly, a second disc gang assembly pivotally mounted to the rear portion of said support frame assembly, said first and second disc gang assemblies being positioned on laterally opposite sides of said support frame assembly and each including a plurality of spaced discing tools, a third disc gang assembly pivotally mounted to said support frame assembly in spaced apart relationship between said first and second disc gang assemblies, said third disc gang assembly including a plurality of spaced discing tools positioned such that the lateral working width of said third disc gang assembly is approximately equal to the combined lateral working width of said first and second disc gang assemblies, each of said disc gang assemblies being pivotally movable between a first position and a second position angularly related thereto, and means for simultaneously pivotally adjusting the angular position of all of said disc gang assemblies to vary the working angle of the discing tools relative to the soil including an actuating arm lever pivotally attached to one of said disc gang



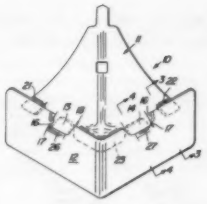
assemblies and a plurality of pivotal arm members operatively interconnecting said first, second, and third disc gang assemblies, operation of said simultaneous adjustment means effecting simultaneous movement of said disc gang assemblies such that said first and second disc gang assemblies move substantially in parallel with each other and said third disc gang assembly moves in an angled relationship thereto.

4,423,790

CULTIVATOR SHARE WITH INTERENGAGING CUTTING BLADE AND MOUNTING PORTIONS

Murray W. Growden, Gladstone, Australia, assignor to Philip A. Growden; Ina S. J. Growden; Sandra J. Lang and Robert B. Land, all of Gladstone, Australia, part interest to each

Filed Dec. 11, 1981, Ser. No. 329,667
Claims priority, application Australia, Apr. 23, 1981, PE8559
Int. Cl.³ A01B *15/06*
U.S. Cl. 172—750 **3 Claims**



1. A cultivator share of the triangular type comprising a cutting blade portion (12) and a mounting portion (11), and interengaging surfaces on said portions retaining said portions together as an assembly with the upper surfaces of the cutting blade portion (12) and mounting portion (11) merging with each other; said interengaging surfaces comprising tongues (13, 14) projecting from the mounting portion (11) and lying coplanar with the part of the mounting portion adjacent thereto; lands (21, 22 and 23) on the mounting portion (11) deformed with respect thereto so as to be contiguous with the rear surface of the cutting blade portion (12), and additional lands (26, 27) on the cutting blade portion (12) deformed with respect thereto so as to receive and be contiguous with the rear surface of the tongues (13, 14) of the mounting portion (11); said interengaging surfaces further comprising edge surfaces (16) of the tongues (13, 14) projecting from the mounting portion (11) abutting edge surfaces of respective complementary recesses (18, 19) respectively formed by the deformed lands (26, 27) in the cutting blade portion (12), each of said tongue edge surfaces (16) comprising a projecting portion (17) complementary

to one of said recesses (18, 19, respectively), each of said projecting portions and its complementary recess being of such shape that, upon assembly of the cutting blade and mounting portions, the cutting blade portion elastically deforms and then at least partly returns to its original shape to engage said projecting portions thereby inhibiting release of the cutting blade from the mounting portion.

4,423,791

METHOD OF INHIBITING DIFFERENTIAL WALL STICKING IN THE ROTARY DRILLING OF HYDROCARBON WELLS

Edward L. Moses, Jr., 1775 Saint James Pl., Suite 300, Houston, Tex. 77056

Filed Jan. 21, 1982, Ser. No. 341,279
Int. Cl.³ E21B *21/00*
U.S. Cl. 175—65 **5 Claims**

1. A method of inhibiting differential wall sticking of a down hole apparatus in the rotary drilling of an open well bore having a drilling fluid therein, comprising:

measuring the weight of the drilling fluid in pounds per gallon and measuring the yield point of the drilling fluid in pound per 100 square feet and if necessary increasing the yield point so that its measured numerical value is not more than four integers less than the numerical value of the weight;

mixing 10 to 50 ppb of the glass beads into the separate drilling fluid, the glass beads being solid and substantially spherical, having a specific gravity between 2.4 and 2.65, a diameter between 9.84 and 187 mils, and a hardness of 5.5 Mohs; and

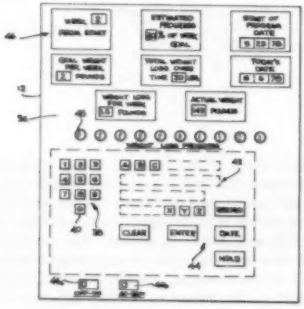
pumping a slug of the glass beads/drilling fluid mixture into the open well bore.

4,423,792

ELECTRONIC SCALE APPARATUS AND METHOD OF CONTROLLING WEIGHT

Donald F. Cowan, 510 Erskine Dr., Pacific Palisades, Calif. 90212

Filed Jun. 17, 1981, Ser. No. 274,557
Int. Cl.³ G01G *19/44, 23/00*
U.S. Cl. 177—25 **30 Claims**



1. An electronic scale apparatus for providing weight control information and interacting with an individual using same on a periodic basis by providing weight control encouragement, said apparatus comprising:

(a) means for measuring weight at sequential selected intervals in time,

(b) signal generating means operatively connected to the means for measuring, for generating an electrical signal in response to the measured weight at each selected interval,

(c) memory means for introducing and storing weight information including a base weight and the measured weights at the selected intervals into said memory means and against which a comparison is to be made,

(d) electronic circuit means operatively connected to the signal generating means for receiving the generated electrical signal of a currently measured weight, said circuit means also being operatively connected to said memory means and capable of calculating a weight change based on a comparison of the base weight previously introduced into said memory means or on a comparison of the measured weight at one or more of the previous selected intervals with the currently measured weight represented by said electrical signal,

(e) display means operatively connected to said electrical circuit means for numerically displaying the calculated weight change at each measured weight,

(f) light means including a plurality of individual light elements operatively connected to said electrical circuit means and being energized in a selected arrangement based on a weight differential between a currently measured weight and a previously measured weight or base weight, certain of said light elements generating light having a color different from other of the light elements so that different colored light patterns can be generated, the arrangements of and color patterns created by energization of the various light elements being a function of the amount of weight differential thus measured and being different for certain different weight differentials, said arrangement of energization of said various light elements also being controlled in a selected pattern and color arrangement to provide a desired amount of encouragement to the user of the apparatus as a function of the weight differential, and

(g) sound generation means operatively connected to said electrical circuit means and being operable to provide a plurality of selected sounds and in a plurality of selected intensities based on a weight differential between a currently measured weight and a previously measured weight, the particular sounds generated and the intensities of such sounds being a function of the amount of weight differential thus measured and being different for certain different weight differentials, the particular sounds and intensities thereof being generated also being selected to provide a desired amount of encouragement to the user of the apparatus as a function of the weight differential, the generation of sounds and energization of lights being coordinated to create a "pin-ball" type effect representing a certain level of achievement by the user of the apparatus creating an effect of increasing the stimuli to control weight so that the user of the apparatus becomes interactive with the apparatus.

4,423,793

LOAD CELL OF INTEGRAL UNITARY CONSTRUCTION CONTAINING A SOLID DISC-SHAPED MEASURING SECTION

Richard F. Caris, Scottsdale, Ariz., assignor to Interface, Inc., Scottsdale, Ariz.

Filed Oct. 23, 1981, Ser. No. 314,310
Int. Cl.³ G01G *3/14;* G01L *1/22*
U.S. Cl. 177—211 **9 Claims**

1. A load cell formed as an integral unitary structure for measuring axially applied loads which comprises

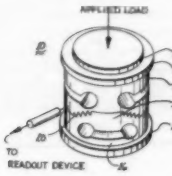
(a) a body of resilient material having first and second ends and containing an axis extending therebetween in the direction of the applied load;

(b) a first pair of spaced diametrical openings located within said body and residing within a first plane, perpendicular to said axis said openings being orthogonal one to the other;

(c) a first pair of opposing slots interconnecting adjacent openings of said first pair and extending inwardly to said axis;

(d) a second pair of diametrical openings located within said

body and residing within a second plane, perpendicular to said axis said openings being orthogonal one to the other, said second plane being axially spaced from said first plane;



(e) a second pair of opposing slots interconnecting adjacent openings of said second pair and extending inwardly to said axis, said second pair of slots being rotated about said axis from said first pair of slots, and

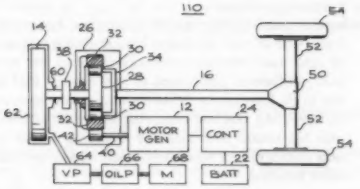
(f) means for sensing strain induced in the peripheral surface of said load cell.

4,423,794

FLYWHEEL ASSISTED ELECTRO-MECHANICAL DRIVE SYSTEM

William H. Beck, Rancho Palos Verdes, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed Mar. 12, 1981, Ser. No. 243,134
Int. Cl.³ B60K *1/04*
U.S. Cl. 180—165 **20 Claims**



1. An electro-mechanical drive system for vehicles comprising:

a planetary differential gear transmission having three separate shafts coupled respectively to a sun gear, planet gears and a ring gear;

a propulsion drive shaft coupled to a first one of said shafts;

a flywheel coupled to a second one of said shafts;

a motor-generator coupled to a third one of said shafts and having the capability of operating as a motor to drive the third shaft and as a generator to develop an output current when driven by the third shaft, the motor-generator and the flywheel being the only sources of propulsion in said drive system;

electrical storage means for supplying electrical energy to the motor-generator when operated as a motor and for receiving electrical energy from the motor-generator when operated as a generator; and

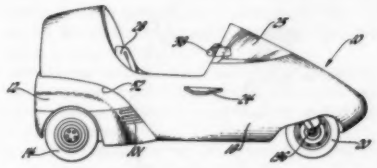
electrical control means for selectively controlling the motor-generator to cause the flywheel to deliver driving power to the drive shaft.

4,423,795

WHEELED VEHICLE WITH CAMBERING FRONT MODULE

Frank J. Winchell, Orchard Lake; Jerry K. Williams, Sterling Heights, and C. Clark Irwin, Dryden, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 19, 1982, Ser. No. 350,330
Int. Cl.³ B62D *61/08*
U.S. Cl. 180—215 **9 Claims**



1. A narrow-track cambering vehicle comprising a rear module having a pair of laterally spaced surface engaging wheels and a forwardly longitudinally extending roll torque resisting tongue and a front module receiving said tongue and carrying a vehicle operator, a front wheel operatively disposed in said front module forward of the front end of the tongue, said vehicle further including bearing means substantially at the junction of the tongue and rear module interconnecting the tongue and front module so that said vehicle operator can camber said front operator carrying module on an inclined camber axis relative to said rear module between predetermined limits in clockwise and counterclockwise directions about said camber axis, manual steering means for steering said front wheel, operator actuated cambering mechanism secured to the forward end of said tongue and forward of the vehicle operator for operatively interconnecting said tongue and said front module, said cambering mechanism being manually manipulated by said vehicle operator so that said operator can directly manually camber said front module in relation to the rear module a controllable amount by exerting a selected torque on said front module through said cambering mechanism, and seat means disposed in said front module for supporting said vehicle operator at a lower center of gravity position therein and directly in front of the rear module.

4,423,796

LADDER CLIMBER'S SAFETY DEVICE

Andrew C. Sulowski, 6 Sweet Pea Path, Weston, Ontario, Canada M9P 3S3, and Henry E. Skelton, 50 Alexander St., Apt. #1808, Toronto, Ontario, Canada M4Y 1B6

Filed Nov. 23, 1982, Ser. No. 444,047
Int. Cl.³ A62B *1/16*
U.S. Cl. 182—8 **6 Claims**

1. A ladder climber's safety device adapted for attachment to a safety belt or harness worn by a climber, comprising:

a pair of handle members,

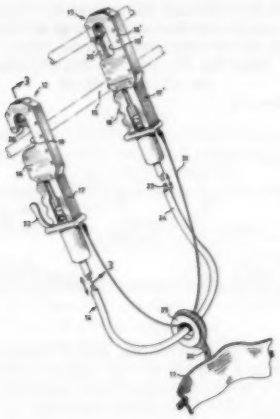
each handle member comprising a manually operable rung engaging portion and a latching member cooperating with said rung engaging portion for preventing disengagement thereof from a rung which is engaged, the latching member having an actuating portion engageable with the rung for holding the latching member in a latching position,

a connector assembly for attachment to the climber's safety belt or harness, and

flexible support means interconnecting the connector assembly with each of said handle members,

the flexible support means comprising a push-pull cable

having a core element interconnecting said latching members for effecting latching and unlatching of each latching



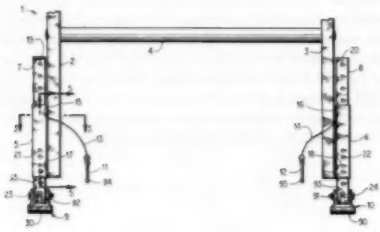
member alternately in response to unlatching and latching of the other.

4,423,797

LADDER LEVELING DEVICE

Lloyd E. Batten, Plantation Acres, Inc., Lot #3, Hephzibah, Ga. 30815

Filed Feb. 1, 1982, Ser. No. 344,767
Int. Cl.³ E06C *7/44*
U.S. Cl. 182—204 **11 Claims**



1. A device for leveling a ladder comprising:

a. a leveler guide with a hollow section secured to the lower portion of said ladder;

b. a leveler leg sized and shaped to fit within said hollow section of said leveler guide;

c. a plurality of guide openings spaced apart a pre-determined distance comprising four guide openings which are consecutively spaced apart one-half inch, three-quarters inch, and one-half inch extending horizontally through said hollow portion of said leveler guide;

d. a plurality of leg openings spaced apart a pre-determined distance of one inch extending horizontally through said leveler leg; and

e. securing means sized and shaped to fit through one of a plurality of guide openings and through one of said plurality of leg openings when said leveler leg is placed within said hollow section of said leveler guide, and operative to secure said leveler leg rigidly to said leveler guide and, thereby, to said ladder,

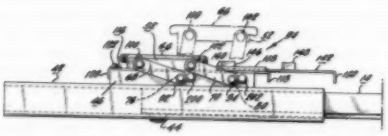
whereas said ladder can be raised or lowered specific distances as small as one-quarter inch in finite adjustments.

4,423,798

LIFT-PAD ASSEMBLY FOR VEHICLE LIFT

John A. Jones, 6312 Fairfield Dr., Flourtown, Pa. 19031

Filed Jul. 14, 1981, Ser. No. 283,190
Int. Cl.³ B60S *13/00*
U.S. Cl. 187—8.75 **5 Claims**



1. A lift-pad assembly for contacting and supporting a part of a vehicle on an arm of a vehicle lift, comprising:

a horizontal platform adated to engage and support said vehicle;

means mounting said platform on said arm in vertically adjustable relation to said arm while holding said platform horizontal in each of its adjusted positions;

said mounting means comprising a flat horizontal base member below said platform, a first and a second pivotable support linkage and a first set of four pivot means having mutually parallel pivot axes, two of said four pivot means pivotably securing a lower portion of said first and second support linkages to one portion of said base member, and two others of said four pivot means pivotally securing an upper portion of said first and second support linkages to one portion of said platform, said four pivot means being located so that a first line extending between and normal to the two pivot axes of one of said support linkages is parallel and equal in length to a second line extending between and normal to the two pivot axes of the other of said support linkages, whereby pivoting motion of said support linkages permits said platform to move sideways and vertically simultaneously, while holding said platform horizontal; and

means for holding said platform in at least three different vertical positions;

wherein said holding means comprises bar means on the underside of said platform, bar-receiving means in the top of said base member for receiving said bar means when said platform is positioned to rest against said base member in its lowermost position, and means movable at will for covering said bar-receiving means to prevent entry of said bar means into said bar-receiving means to support said platform in a second position higher than said lowermost position.

4,423,799

VEHICLE DOOR LOCK FOR LIMITING DOOR OPENING TO SPECIFIED VEHICLE POSITIONS

Walter Glaser, Montvale, and Herbert P. Glaser, Demarest, both of N.J., assignors to G.A.L. Manufacturing Corporation, Bronx, N.Y.

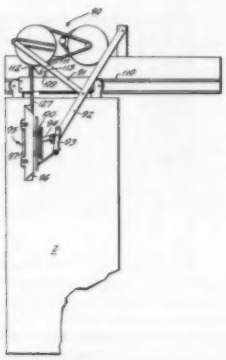
Continuation-in-part of Ser. No. 201,307, Oct. 7, 1980, Pat. No. 4,364,454. This application Dec. 28, 1981, Ser. No. 334,533
Int. Cl.³ B66B *13/00*
U.S. Cl. 187—57 **6 Claims**

1. In a passenger transportation system in which a passenger carrying vehicle moves along a selected path and stops at predetermined points to permit passengers to exit from said vehicle, said vehicle having a door thereon which travels therewith and which opens to permit the exiting of passengers from the vehicle, the combination therewith of:

latching means carried by said vehicle and acting between the door and another portion of the vehicle for permitting opening of said door by a predetermined amount less than the amount required for a passenger to exit from the vehicle and for preventing opening of said door by more than

said predetermined amount, said latching means comprising stop means on said another portion of said vehicle and locking means on said door movable therewith and engagable with and disengagable from said stop means;

control means which is responsive to the position of said vehicle, which is connected to said latching means and which disables said latching means when said vehicle is within a predetermined distance from a said point and thereby permits said vehicle door to open more than said predetermined amount when said vehicle is within a predetermined distance from a said point, said distance being



small relative to the distances between said points, said control means comprising operating means mounted on said door and movable toward and away from said door, said operating means being connected to said locking means for preventing said locking means from engaging said stop means when said operating means is in a first position near said door and for permitting said locking means to engage said stop means when said operating means is in a second position farther from said door; and

further means at each of said points for preventing said operating means from moving into its said second position when said vehicle is at a point.

4,423,800

SHOCK ABSORBER WITH IMPROVED COMPRESSION VALVE MECHANISM

Michael H. Kobiske, St. Charles, Ill., and Jerome S. Pepi, North Attleboro, Mass., assignors to Maremont Corporation, Carol Stream, Ill.

Filed Mar. 3, 1980, Ser. No. 126,282
Int. Cl.³ F16F 9/52
U.S. Cl. 188—277 **9 Claims**

1. In a hydraulic shock absorber adapted to be connected between the sprung and unsprung masses of a vehicle including a tubular member defining a cylindrical chamber, a piston slidably mounted within said cylindrical chamber, a piston rod extending from one side of said piston outwardly from one end of said tubular member, closure means on said one end of said tubular member closing the one end of said tubular member and slidably sealingly engaging said piston rod, end closure means on the opposite end of said tubular member, connecting means for connecting said shock absorber operatively between said masses, hydraulic fluid filling rebound and compression spaces within said cylindrical chamber on the piston rod side of said piston and on the opposite side thereof respectively, said piston having first passage means therethough, rebound valve means disposed in cooperating relation with said first passage means to control flow of fluid from said rebound space to said compression space, second passage means disposed between the outer periphery of said piston and the interior periphery of said cylindrical chamber, a compression valve mechanism carried by said piston for controlling flow of fluid through said second passage means from said compression space to said rebound space peripherally across said piston, and means to accommodate the flow of hydraulic fluid resulting from piston rod displacement, the improvement which comprises said compression valve mechanism including:

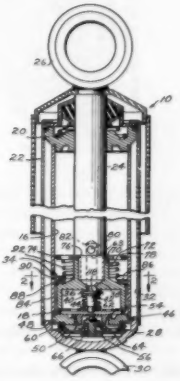
an upwardly facing annular valve seat on said piston,

an annular valve seat engaging member disposed in cooperating relation with said second passage means and having an exterior periphery spaced closely apart from the interior periphery of said cylindrical chamber providing a relatively small annular gap therebetween and a downwardly facing surface adapted to engage the upwardly facing annular valve seat,

an annular seal mounted above said annular engaging member in motion transmitting relation therewith, said seal being made of relatively rigid material and comprising five components:

(1) said seal being split radially to provide a bleed gap and for expanding to vary the fluid flow size of the bleed gap,

(2) said seal having an upwardly and inwardly facing generally frustoconical flat spring force transmitting surface,



(3) said seal having an outer peripheral sealing surface, and

(4) said seal having a lower seating surface;

(5) said seal having a depending interior flange extending within the interior of said annular engaging member;

a spring disposed above said seal having its upper end fixed with respect to said piston and having its lower end disposed in direct force transmitting relation with the force transmitting frustoconical surface of said seal, said spring biasing said seal for performing three simultaneous functions:

(1) downwardly urging said lower seating surface of said seal against said annular engaging member urging the same into engagement with said annular valve seat,

(2) radially outwardly urging said peripheral sealing surface of said seal into sealing engagement with the interior periphery of said cylindrical chamber, and

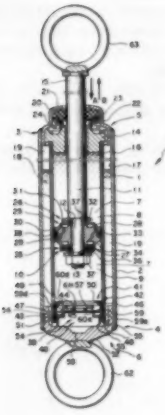
(3) expanding said seal to provide said bleed gap at the radial split providing a bleed path communicating with said second passage means via the annular gap of said annular engaging member, for channeling the flow of hydraulic fluid between said compression and rebound space.

4,423,801

SHOCK ABSORBER

Ieaki Miura, Yokohama, Japan, assignor to Tokico Ltd., Kawasaki, Japan

Filed Apr. 1, 1981, Ser. No. 249,749
Claims priority, application Japan, Apr. 9, 1980, 55-47763[U]
Int. Cl.³ F16F 9/19
U.S. Cl. 188—322.14 6 Claims



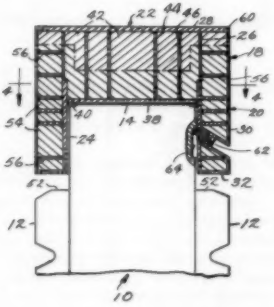
1. A hydraulic shock absorber, comprising:
a cylinder;
a piston slidably fitted within the cylinder to divide the cylinder into two hydraulic fluid chambers;
a piston rod secured at one end to the piston and extending from said one end, passing through one of the two fluid chambers, and projecting out of the cylinder while being slidably supported in a rod guide at one end of the cylinder;
a damping force generating means mounted on the piston for generating damping forces by throttling a flow of hydraulic fluid from said one fluid chamber to the other of said two fluid chambers and also by throttling a flow of hydraulic fluid from said other fluid chamber to said one fluid chamber;
a fluid reservoir communicated with said other fluid chamber through a channel and filled with hydraulic fluid and pressurized gas; and
a valve mechanism provided in the communicating channel, the valve mechanism comprising a check valve allowing the hydraulic fluid to flow from the fluid reservoir to said other fluid chamber, the check valve having a valve body, a valve seat member and a plate-like member disposed at a position between the valve body and a valve seat of the valve seat member, and a plurality of orifices composed of a plurality of cut-out portions provided at a plurality of positions of the plate-like member for throttling the flow of the hydraulic fluid from said other fluid chamber to the fluid reservoir, the sizes of said orifices being kept constant during the contraction stroke of the shock absorber.

4,423,802

SHOCK ABSORBERS

Werner Botzem, Alzenau; Ortwin Knappe, Hanau, and Peter Srostlik, Maintal, all of Fed. Rep. of Germany, assignors to Transnuklear GmbH, Hanau, Fed. Rep. of Germany

Filed Jul. 27, 1981, Ser. No. 287,472
Claims priority, application Fed. Rep. of Germany, Jul. 26, 1980, 3028424
Int. Cl.³ B60T 11/04
U.S. Cl. 188—377 14 Claims



1. Cap-shaped shock absorber means for attachment over the cylindrical end portion of a container for transporting and/or storing radioactive material, especially spent nuclear fuel elements, the container having means arranged circumferentially about the container adjacent the inner end of and projecting radially outwardly beyond the end portion and defining an abutment surface facing the end of the container, comprising:
an annular part adapted to fit snugly over the end portion of the container and having inner and outer ends;
a plug part detachably secured in said outer end of said annular part, the inner end of said annular part being spaced from the abutment surface when said shock absorber is installed on the container;
said annular part including a strong rigid inner sleeve extending from the open end of said annular part past the inner end of said plug part to a location between said parts spaced from the outer end of said plug part;
means securing said sleeve to said plug part for detachment therefrom on an impact with said shock absorber having a directional component extending longitudinally of the container; and
shock absorbing material enclosed within each of said parts, the material in said plug part being constructed and arranged to have less resistance to crushing on such impact than that in said annular part, whereby on such impact said annular part becomes detached from said plug part and does not participate effectively in shock absorption of such impact until said plug part is crushed sufficiently to allow the annular part to engage with the abutment surface.

4,423,803

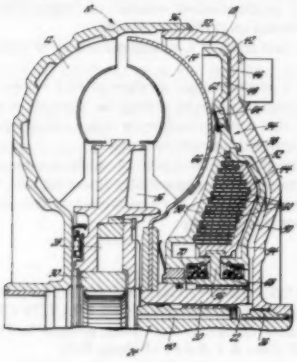
TORQUE CONVERTER CLUTCH WITH A TEMPERATURE REGULATOR VALVE

John D. Malloy, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 5, 1981, Ser. No. 318,324
Int. Cl.³ F16D 13/72, 25/06
U.S. Cl. 192—3.29 3 Claims

1. A thermally sensitive control and torque converter clutch for use in a torque converter comprising; a friction clutch selectively engageable with the input of the torque converter and including a pressure plate; a viscous shear clutch in series drive relation with said friction clutch and being drivingly

connected to the output of the torque converter; apply chamber means and release chamber means on opposite sides of said pressure plate; a passage means through said pressure plate connecting said apply chamber means to said release chamber means; and thermally sensitive valve means mounted on said



pressure plate for normally closing said passage means when the temperature in said apply chamber means is below a predetermined value and for opening communications between said apply chamber means and said release chamber means when the temperature is above said predetermined value.

4,423,804

FRICTION CLUTCHES

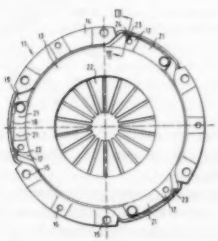
John Kettell, and David Anderson, both of Sheffield, England, assignors to Laycock Engineering Limited, Sheffield, England

Filed Jul. 2, 1981, Ser. No. 279,651

Claims priority, application United Kingdom, Jul. 4, 1980, 8022012

Int. Cl.³ F16D *13/71*

U.S. Cl. 192—109 R **2 Claims**



1. A clutch assembly comprising a cover member having a mounting flange adapted to be connected to a flywheel, and an annular lateral wall and a rear wall together defining a recess, a pressure plate disposed within said recess and having outwardly extending lugs, flexible resilient means connecting said lugs to the cover member for torque transmission while permitting relative axial movement therebetween, spring means operative between the cover member and the pressure plate to bias the pressure plate out of said recess towards a position corresponding, when the assembly is in use, to the engaged position, and abutments on the cover member arranged to engage said lugs to prevent movement of the pressure plate out of the recess to an extent which would overstress the flexible means, said abutments comprising portions of said annular lateral wall each sheared and displaced inwardly therefrom while remaining connected thereto at opposite ends of the portion circumferentially of the cover member, said portions being set back from said mounting flange towards said rear wall.

4,423,805

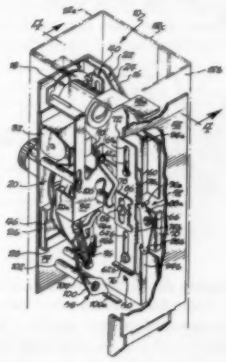
RATCHET ESCAPEMENT COIN COUNTER

Douglas A. Barth, Sinclairville, and Richard J. Chester, Kennedy, both of N.Y., assignors to American Locker Security Systems, Inc., Jamestown, N.Y.

Filed Jul. 29, 1981, Ser. No. 288,008

Int. Cl.³ G07F *5/04, 17/12*

U.S. Cl. 194—1 G **16 Claims**



1. In a coin operated lock unit of the type having a coin chute through which coins having a diameter not exceeding a given diameter of a coin of a given denomination of a given currency are permitted to pass on edge therethrough, a patron lock coupled with a locking device movable upon operation of said patron lock between unlocking and locking positions, and restraining means normally operable for preventing movement of said locking device from said unlocking position into said locking position until a predetermined number of coins of said given denomination have been deposited in said coin chute, the improvement wherein said restraining means comprises in combination:

coin detecting means including operator means biased for movement from a first position thereof in a direction relatively towards a sensing station, said operator means has ratchet teeth spaced apart in alignment with said direction of movement and adjustably mounts a member in one of a plurality of positions spaced apart in alignment with said direction of movement, and said coin detecting means additionally includes a coin sensing pawl means releasably engageable with said ratchet teeth for permitting stepwise movements of said operator means from said first position under said bias towards said sensing station in response to depositing of said coins of said given denomination in said coin chute, the spacing between said positions of said member corresponding essentially to a given distance moved by said operator means incident to each stepwise movement thereof;

sensing means arranged at said sensing station and operable to release said locking device for movement into said locking position upon movement of said member into operative association with said sensing means at said sensing station, and said member is selectively adjustable relative to said operator means to vary the number of stepwise movements required to move said operator means from said first position to position said member in operative association with said sensing means, whereby to selectively vary the number of coins of said given denomi-

nation required to be deposited in said coin chute to permit operation of said patron lock; and

means for returning said operator means to said first position thereof incident to movement of said locking device between said unlocking and locking positions thereof.

4,423,806

PALLET CHANGING DEVICE FOR A NUMERICALLY CONTROLLED MACHINE TOOL

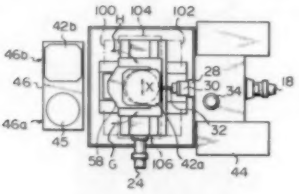
Susumu Ogasawara, Yokohama, Japan, assignor to Makino Milling Machine Co., Ltd., Tokyo, Japan

Filed Aug. 28, 1981, Ser. No. 297,110

Claims priority, application Japan, Sep. 5, 1980, 55-125532[U]

Int. Cl.³ B65G *37/00*

U.S. Cl. 198—339 **18 Claims**



7. A pallet changing device for cooperation with an associated numerically controlled machine tool having a machine bed, a lower slide mounted on said machine bed so as to be slidable along a first lateral axis, an upper slide mounted on said lower slide so as to be slidable along a second lateral axis perpendicular to said first lateral axis, the device moving a pallet between successive positions and comprising:

a pallet dimensioned and configured for holding a workpiece thereon;

a pallet support for resting a pallet;

a pallet positioning table mounted on said upper slide and adapted for positioning said pallet thereon;

a clamping means for clamping said pallet to said pallet positioning table;

a pallet holding means for holding a pallet while the movement of a pallet is carried out; and

a pallet transferring means mounted on said associated upper slide and adapted for moving said pallet holding means between said pallet positioning table and said pallet support being selectively responsive to sliding movement of said associated upper slide along said second lateral axis during movement of a pallet between said pallet positioning table and said pallet support.

4,423,807

PROCESS AND APPARATUS FOR THE FORMATION OF SETTING LAYERS MADE UP OF BRICK BLANKS

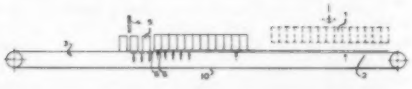
Walter Muller, Krumbach, Fed. Rep. of Germany, assignor to Lingl Corporation, Paris, Tenn.

Filed Apr. 21, 1981, Ser. No. 256,248

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1980, 3006909

Int. Cl.³ B65G *47/26*

U.S. Cl. 198—425 **17 Claims**



1. A process for forming setting layers of brick blanks having cross-rows of brick blanks spaced apart at predetermined distances, said process comprising the steps of:

continuously operating plural parallel spaced-apart conveyors to convey brick blanks along a longitudinal direction from a stacking point to a removal point,

feeding a predetermined number of longitudinal rows of brick blanks onto the conveyors,

stopping said rows at a predetermined point against a stop strip,

isolating a predetermined portion of said stopped rows on plural lifting devices by raising the lifting devices between the parallel conveyors thereby lifting closed-up longitudinal rows off the conveyors, and

redepositing said isolated portion on the continuously moving conveyors by sequentially lowering said lifting devices beginning with the first cross-machine row stopped adjacent the stop strip.

4,423,808

APPARATUS FOR UNHOOKING AND TRANSFERRING HUNG ARTICLES, IN PARTICULAR CUTS OF MEAT

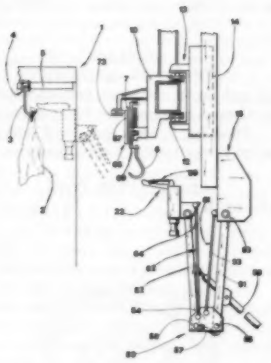
Rino Venturelli, Savignano S/P, Italy, assignor to Tecnomec di Venturelli Rino & C.S.n.c., Modena, Italy

Filed Sep. 23, 1981, Ser. No. 304,810

Claims priority, application Italy, Oct. 8, 1980, 40081 A/80; Apr. 17, 1981, 40043 A/81

Int. Cl.³ B65G *37/00*

U.S. Cl. 198—477 **11 Claims**



1. An apparatus for unhooking and transferring hung articles, in particular cuts of meat (2), characterised by the fact that it comprises:

at least one movable gripping mechanism (22) designed to unhook or withdraw said articles from first hooks (3) or the like on which they have been hung initially, to hold them thus, and transfer them to and re-hang them on second hooks (6); said gripping mechanism (22) comprising two appropriately shaped gripping elements (23), disposed symmetrically one with respect to the other and capable of movement thus from at least one working position (A) in which they are disposed with, at least, their free extremities in contact through uniting of their opposed relative surfaces, to at least one second working position (B) in which said elements are positioned at that minimum reciprocal distance which allows one of the said second hooks (6) to be guided into insertion therebetween; said gripping mechanism (22) mounted firmly to the extremity of an arm (17, 36 or 50) and movable in three respectively orthogonal directions; provision being made at the outward-facing side of each of gripping elements (23) for at least one tracer point (59) serving to sense said article's correct positioning with respect to gripping

mechanism (22) in order to ensure insertion and safe hanging of the former upon the latter;

an appliance working in conjunction with said gripping mechanism (22) designed to spot each of, at least, said second hooks (6) so as to position and centre same correctly with respect to elements (23) of gripping mechanism (22).

4,423,809

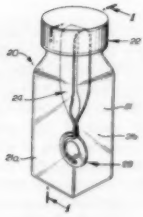
PACKAGING SYSTEM FOR INTRAOCULAR LENS STRUCTURES

Thomas R. Mazzocco, Granada Hills, Calif., assignor to Staar Surgical Company, Inc., Irwindale, Calif.

Continuation-in-part of Ser. No. 346,105, Feb. 5, 1982. This application Jul. 22, 1982, Ser. No. 400,664

Int. Cl.³ B65D *81/22;* **A61F** *1/16;* **B65D** *25/54, 51/24*

U.S. Cl. 206—5.1 **23 Claims**



1. An improved autoclavable system for packaging of an intraocular lens structure having a peripheral lens portion and an optical zone lens portion for implantation within a human eye, said system comprising, in combination:

(a) an outer container having at least two optically clear windows arranged in substantially parallel relationship with one another;

(b) means for sealing and for maintaining a sterile environment within said outer container;

(c) means for receiving and for supporting said intraocular lens structure mounted within said outer container, said means integrating with said peripheral lens portion of said intraocular lens structure but maintaining said optical zone portion of said intraocular lens structure in a substantially complete visually unobstructed fashion aligned with said outer container windows thereby enabling the intraocular lens structure to be inspected from said outer container windows for prescribed optical parameters of said intraocular lens structure including type, size, configuration, optical finish and diopter power of said lens structure; and

(d) a fluid medium within said outer container having appropriate optical transmission characteristics, wherein said system for packaging said intraocular lens structure affords measurement of said optical parameters of said lens structure in an environment substantially similar to the expected environment of said lens structure once implanted in the eye while maintaining a sterile environment for the lens structure within said system for packaging.

4,423,810

COVER FOR MULTIPLE UNIT CONTAINER PACKAGES

James S. Bader, Lakewood, Colo., assignor to Adolph Coors Company, Golden, Colo.

Filed Aug. 14, 1981, Ser. No. 292,811

Int. Cl.³ B65D *71/00*

U.S. Cl. 206—158 **14 Claims**

1. An apparatus for securing and covering a group of cans comprising:

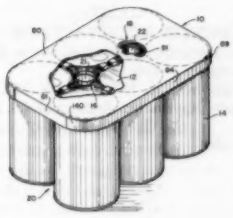
molded clip means disposed in at least one intersticial opening between end portions of a plurality of cans for securing said plurality of cans in a group, said molded clip means hving flange portions and chime engaging means defining curved surface portions which are coupled to said flange portions to form rim portions, said curved surface portions and said flange portions defining a central opening in said clip means having a size and shape suitable for insertion of a finger;

cover means for providing a covering over said end portions of said group of cans comprising:

main body means for covering at least part of said end portions of said group of cans;

locking tab means formed in said main body means by cut-lines and disposed to align with said molded clip means for integrally locking said cover means to said clip means and holding said cover means in engagement with said clip means;

fold line means for allowing said locking tab means to be displaced from said main body means at said cut-lines and inserted in said central opening of said clip means;



resilient hinge means disposed on said locking tab means for providing a resilient fold line between a central portion and ear portions of said locking tab means which causes said ear portions to fold relative to said central portion about said resilient fold line during insertion of said locking tab means in said central opening of said molded clip means and to resiliently outwardly expand to engage said curved surface portions defined by said chime engaging means and abut against said flange portions such that forces produced between said molded clip means and said cover means causes said ear portions to become seated in and further engage said rim portions to hold said ear portions in an expanded position in interlocking relationship with said clip means and prevent removal of said cover means from said molded clip means.

4,423,811

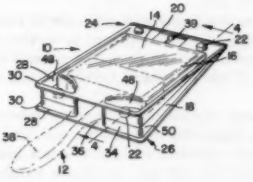
MOLDED CONTAINER

Jules F. Knapp, Highland Park, Ill., assignor to United Coatings, Inc., Chicago, Ill.

Filed Sep. 30, 1982, Ser. No. 431,206

Int. Cl.³ B65D *83/10*

U.S. Cl. 206—362.3 **4 Claims**



1. A molded container for displaying an article comprising first and second panels, each panel including a recess and having an upper end and a lower end, a rib portion hingably

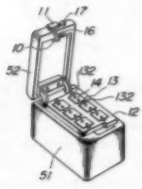
connecting the panels to one another at their upper ends so that when the panels are folded to a closed position in which the inner surface of the first panel contacts the inner surface of the second panel, a compartment is formed between said panels and a base section is defined at the lower ends of the panels including an opening through which a portion of the article displayed within the compartment can extend; and closure means including at least one first connecting member at the lower ends of the first panel and at least one second connecting member at the lower end of the second panel and gripping means comprising a recessed portion about each of said connecting members whereby insertion of said first connecting member within said second connecting member releasably secures the panels in the closed position by a press fit to hold said article therebetween, said first connecting members comprises cylindrical projections and said second connecting members comprise cylindrical depressions, said first and second connecting parts being axially symmetrical.

4,423,812

CASSETTE RECEPTACLE DEVICE

Masaaki Sato, Hachioji, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

Filed Sep. 15, 1981, Ser. No. 302,374
Claims priority, application Japan, Sep. 18, 1980, 55-130429
Int. Cl.³ B65D *85/672*
U.S. Cl. 206—387 **5 Claims**



1. A combined cassette receptacle and article storage device for a motor vehicle comprising:

means defining an article storage compartment generally formed with a box-like configuration having an open side through which articles may be inserted and removed from said compartment;

a lid mounted to said compartment for opening and closing of said open side thereof;

a cassette receptacle member mounted on said article storage compartment for cooperation with said lid and adapted to releasably hold therein a plurality of tape cassettes;

hinge means pivotally mounting said lid to said compartment for pivotal movement between an open and a closed position relative to said open side and also pivotally mounting said cassette receptacle member for pivotal motion relative to both said article storage compartment and said lid, said hinge means being structured to mount both said lid and said receptacle member for pivotal movement about a common axis;

recessed means defining on said cassette receptacle member a plurality of recesses shaped to receive therein in fitted engagement tape cassettes, said recesses being located on a side of said receptacle member facing toward said lid; and

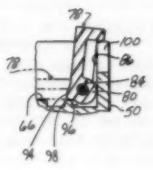
latch means operatively interposed between said article storage compartment and both said lid and said cassette receptacle member, said latch means being operative to latch said lid and said receptacle member together for pivotal motion jointly about said common axis to enable access to said storage compartment and to release said latching engagement to permit pivoted motion about said common axis of said lid alone to enable access to said recesses on said cassette receptacle member.

4,423,813

MULTILEVEL STACKING CONTAINER

Elsmer W. Kreeger, Allegan, and Edward L. Stahl, Brighton, both of Mich., assignors to Pinckney Molded Plastics, Inc., Pinckney, Mich.

Filed May 24, 1982, Ser. No. 381,072
Int. Cl.³ B65D *21/04*
U.S. Cl. 206—506 **6 Claims**



1. In a multilevel stacking container adapted to be stacked on a like container at any one of a plurality of different levels relative thereto, said container including a rectangular bottom, and first and second end walls fixedly secured to and projecting upwardly from respective opposite ends of said bottom; the improvement wherein each of said end walls comprises a web-like lower rail fixedly secured to said bottom, a web-like upper rail vertically spaced above said lower rail, a plurality of support webs each fixedly secured at its lower end to the outer side of said lower rail and fixedly secured at its upper end to the inner side of said upper rail whereby said upper rail is offset outwardly from said lower rail by the thickness of said support webs, a support foot at the lower end of each support web, a support platform at the upper end of each support web spaced downwardly from the upper edge of said upper rail and horizontally offset from the support foot at the lower end of its support web, a support seat on each support web vertically below and horizontally offset from both the support platform and support foot on the web, means defining a recess on the inner side of said upper rail extending horizontally the entire length of said upper rail and extending downwardly from the upper edge of said upper rail substantially to said support platforms, a stacking shelf, hinge means hingedly connecting said shelf to said upper rail along the lower edge of said recess for hinging movement of said shelf relative to said upper rail between a generally vertical stored position wherein said shelf is received within said recess and a generally horizontal support position wherein said shelf lies upon said support platforms in vertical alignment with said stacking feet whereby the stacking feet of a like container may be supported on said shelf when said shelf is in said support position to establish a high stacked relationship and may be supported on said support seats when said shelf is in said stored position and said like container is in a first orientation to the one container, said upper rail being engageable with said shelf when said shelf is in said stored position and said like container is in a second orientation reversed from said first orientation.

4,423,814

SEPARATION OR CONCENTRATION OF MAGNESIUM-BEARING MINERALS BY INDUCED FLUORESCENCE

William R. White, Capistrano Beach, Calif., assignor to Occidental Research Corporation, Irvine, Calif.

Filed Jun. 5, 1981, Ser. No. 270,730
Int. Cl.³ B07C *5/02, 5/34*
U.S. Cl. 209—3.3 **7 Claims**

1. A process for separation of magnesium-rich first ore particles containing an exposed magnesian mineral on the surface of said magnesium-rich ore particles from magnesium lean second ore particles containing a lesser surface area of said exposed magnesian mineral on its surface than the first ore particles, said process comprising the steps of:

a. conditioning particulate ore comprising said magnesium-rich ore particles and said magnesium lean ore particles with a conditioning agent comprising at least one hydroxyquinoline which by irradiation with electromagnetic radiation can be induced to fluoresce at at least one particular wavelength when combined with said magnesian mineral on the surface of said ore particles and which causes said magnesium lean ore particles after said conditioning and upon said irradiation to fluoresce at a substantially lower intensity or not at all at said particular wavelength than the intensity of said fluorescence of said irradiated, conditioned, magnesium-rich ore particles;

b. after said conditioning, irradiating said magnesium-rich and said lean ore particles with electromagnetic radiation to produce sufficient fluorescence of said conditioned and irradiated magnesium-rich ore particles to enable the difference in fluorescent intensity between said irradiated, conditioned magnesium rich ore particles and the irradiated, conditioned magnesium lean ore particles to be detected;

c. detecting the fluorescent intensity of said irradiated, conditioned ore particles; and,

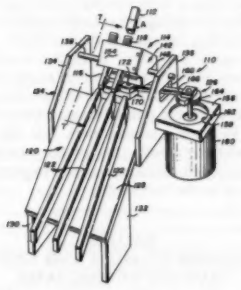
d. separating said magnesium-rich ore particles from said lean ore particles based on the detected differences in fluorescent intensity of said conditioned, irradiated ore particles.

4,423,815

COMPONENT SORTING APPARATUS

Claude M. Boissicat, Cupertino, Calif., assignor to Contrel Corporation, Sunnyvale, Calif.

Filed Aug. 10, 1981, Ser. No. 291,253
Int. Cl.³ B07C 9/00, 5/344
U.S. Cl. 209—655 **11 Claims**



1. A component sorting apparatus comprising:

track means for receiving one at a time articles to be sorted;

shuttle means including a pair of rails and support means having spacing means for holding said rails in spaced apart relationship, and at least one rod means, said rails and said spacing means being slideably moveable as a unit along said rod means so that said rails may be positioned in alignment with said track means to receive articles therefrom, and drive means for selectively positioning said rail means relative to said track means; and

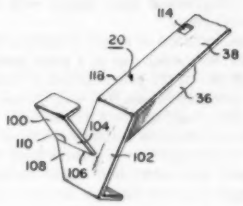
output means forming at least three paths equally spaced from one another by distances which are a function of the spacing between said rails, and for receiving articles from said shuttle means, the direction of extent of said track means and the paths of said output means extending substantially parallel to one another, with said rails being disposed between said track means and the paths of said output means and arranged for reciprocating movement in a direction transverse to the direction of extent of said track means and the paths of said output means, the respective ones of said rails being arranged for movement into positions for feeding articles received from said track means to less than all of the paths of said output means.

4,423,816

FORWARD FEED MERCHANDISING DEVICE FOR SOFT DRINK BOTTLES

James M. Suttles, Elberton, Ga., assignor to The Mead Corporation, Atlanta, Ga.

Division of Ser. No. 178,933, Aug. 18, 1980, Pat. No. 4,367,818.
This application Sep. 27, 1982, Ser. No. 424,148
Int. Cl.³ A47F 5/00
U.S. Cl. 211—183 **1 Claim**



1. A unitary, elongated sheet metal track element for use in a bottle merchandising device comprising:

a substantially planar, elongated web having two opposite edges extending in the direction of its length; and

first and second flanges of different widths extending in opposite directions from the respective edges of said web in substantially perpendicular relationship to said web;

and characterized by first and second ramps, extending respectively from said first and second flanges, in perpendicular relationship to the plane of said web and in oblique relationship to said flanges, beyond one end of said web, said ramps crossing each other, and each ramp having means, projecting through the plane of said web and overlying and engaging the other ramp, for preventing said other ramp from bending toward a coplanar relationship with the flange from which it extends.

4,423,817

SHELF RACK

Jesus Monjo-Rufi, Lázaro Cárdenas, 1., Barcelona, Spain

Filed Aug. 6, 1981, Ser. No. 290,422
Claims priority, application Spain, Aug. 8, 1980, 252.761
Int. Cl.³ A47B 57/04
U.S. Cl. 211—187 **7 Claims**

1. A shelf rack, comprising:

a pair of profiled vertical joints with generally U-shaped cross-sections;

cross-member brace means for linking together the pair of profiled vertical joints to form a unit;

interlinkable longitudinal beam means for connecting together the pair of profiled vertical joints;

two longitudinal rows of slanted aperture means, provided along the length of each one of the pair of profiled vertical joints, for fitting together the pair of profiled vertical joints with the interlinkable longitudinal beam means, said aperture means by equidistant pairs converging symmetrically together downwards and each of said aperture means having a contour which takes the approximate shape of an irregular pentagon;

angular section means, provided at each end of the interlinkable longitudinal beam means, for fitting together the interlinkable longitudinal beam means with the pair of profiled vertical joints;

free wing means, included as a part of each of the angular section means, for jutting out in a plane parallel to the length of each one of the pair of profiled vertical joints;

tongue means, provided in said free wing means, for fitting into at least one of said aperture means; and

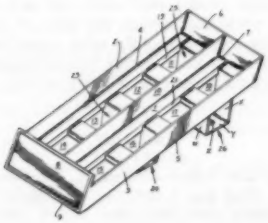
safety bolt means, formed as a mainly S-shaped shank, for interlocking the tongue means into at least one of said aperture means, said safety bolt means having one end branch arranged to extend through the free wing means in which the tongue means is provided and having the other end branch arranged to extend through at least one of said aperture means.

4,423,818

ARTICLE DISPENSER

William S. Spamer, Roswell, Ga., assignor to The Mead Corporation, Dayton, Ohio

Filed Sep. 21, 1981, Ser. No. 304,895
Int. Cl.³ A47F *1/00*
U.S. Cl. 211—49 D **9 Claims**



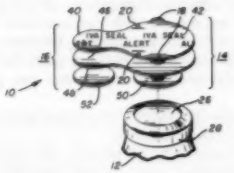
1. An article dispenser comprising a base element, side panels joined respectively to the side edges of said base element and upstanding therefrom, a rear panel joined to one end edge of said base element and upstanding therefrom, a front panel joined to the other end edge of said base element and upstanding therefrom, at least one aperture formed in said base element, at least one front support element extending downwardly from said base element and being secured thereto, at least one rear support element extending downwardly from said base element and being secured thereto, said rear support element extending downwardly a distance farther than said front support element, a first reinforcing rib extending substantially the length of said base element with at least a portion thereof in coincidence with a portion of the periphery of said aperture, said aperture having a pair of oppositely disposed generally parallel edges, one of said support elements comprising a pair of downwardly extending vertical supports, said vertical supports being secured respectively to said base element along said pair of edges and being coextensive therewith, a horizontal support secured to the lower edges of said vertical supports and extending therebetween, and said horizontal support being angularly disposed with respect to said base element.

4,423,819

FLEXIBLE STERILE CLOSURE SYSTEM FOR CONTAINERS

Robert Cummings, Richardson, Tex., assignor to U.S. Clinical Products, Inc., Richardson, Tex.

Continuation-in-part of Ser. No. 294,331, Aug. 19, 1981, Pat. No. 4,390,104. This application Jun. 7, 1982, Ser. No. 386,021
Int. Cl.³ B65D *41/32*
U.S. Cl. 215—232 **63 Claims**



1. A flexible multi-layered sealing cover for resealing the port of a pharmaceutical container, comprising:

a first layer of plastic film forming an upper surface of a cover region, said first layer being substantially impermeable to moisture and bacteria;

a second layer of a flexible film forming a next layer of the cover region, said second film layer being made from a material capable of plastic deformation under stress;

means for bonding said first layer to said second layer;

an area of adhesive material bonded to the surface of said second layer;

means for forming an adhesive free region within said adhesive area for separating the adhesive material of said adhesive region from the port of the container;

a pull-tab region extending from the cover region and formed from said first and second layers; and

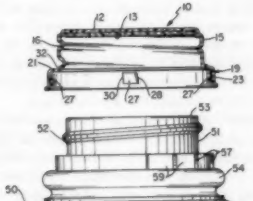
means for tearing the cover along at least one tear line upon its removal with said pull-tab region from the port of the container to leave a telltale mark that the seal has been broken, whereby application of the cover to the port causes plastic deformation to occur to promote retention of the cover to the container.

4,423,820

TAMPER PROOF CLOSURE AND METHOD OF MANUFACTURING SAME

William Vangor, Fairfield, Conn., assignor to KLM Company, Bridgeport, Conn.

Filed Mar. 1, 1982, Ser. No. 353,401
Int. Cl.³ B65D *41/34*
U.S. Cl. 215—252 **12 Claims**



1. A closure thermoformed from a sheet of plastic material to have

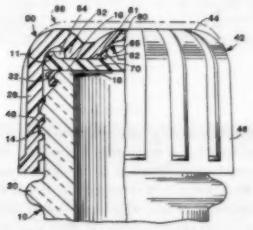
a top,
a skirt wall having one end depending from said top,
an annular, generally horizontal flange having one edge attached to the other end of said skirt wall,
a breakaway ring depending downwardly from said other edge of said flange, said flange being cut therearound to form a major cut line through the flange and a plurality of bridges which hold the ring to the flange, each of said bridges being generally trapezoidal in shape with two generally parallel sides, one being narrower than the other and two ends joining said sides with the ends diverging in generally opposite directions from said narrow side, the narrow side of each bridge facing and connected to the skirt wall and the other wider side facing and connected to the breakaway ring, and
at least one tab on said breakaway ring adapted to engage a lug on the container to which the closure is fastened when the closure is unfastened by rotation in a first direction, the continuing rotation of the closure in said first direction causing the ring to lock and the bridges to fracture whereby the breakaway ring separates from the closure.

4,423,821

STRESS FAILURE RESISTANT CONTAINER CAP

James McIntosh, Montclair, N.J., assignor to Mack-Wayne Plastics Company, Wayne, N.J.

Filed Sep. 23, 1981, Ser. No. 304,834
Int. Cl.³ B65D *41/04*
U.S. Cl. 215—329 **8 Claims**



1. A stress failure resistant cap for a threaded neck container having a discharge opening therein, said cap being made of a resilient material and including;
a top portion having a dome-shaped center section and a circumferentially depending annular rib which bridges the dome-shaped center section and outer corner portion and engages the container adjacent the discharge opening when the cap is applied,
a skirt depending from said top portion and having threads which cooperate with the threads on the container neck as the cap is applied,
a circumferential corner portion of arcuate cross section having a full large radius located at the juncture between said rib and said skirt,
whereby excessive tightening pressure applied to said cap causes flexure of said dome and corner portions and lateral elastic yielding of said top portion thereby preventing stress cracking of said cap top portion.

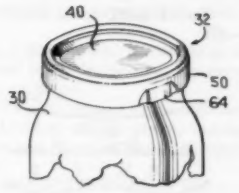
4,423,822

CLOSURE CAP WITH THUMB ACTUATED REMOVAL ASSISTING TAB

Joseph C. Powalowski, Chicago, Ill., assignor to Continental White Cap, Inc., Northbrook, Ill.

Filed Apr. 1, 1982, Ser. No. 364,278
Int. Cl.³ B65D *41/46*
U.S. Cl. 215—365 **11 Claims**

1. A snap-on closure for containers, said closure having at least an annular rim portion including a depending skirt formed of a deformable plastic, said skirt having an internal bead for locking relative to a container neck finish; said closure being improved by said skirt having formed in the confines of said skirt a skirt portion disposed along a free edge of said skirt and deflectable from the contour of said skirt and defining a thumb



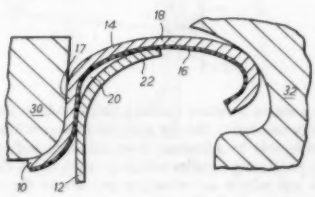
engageable tab for facilitating the application of a lifting removal force to said closure, said tab being integral with said skirt and having a primary connection with the remainder of said skirt along a circumferential line spaced from said skirt free edge a distance at least as great as the spacing of a central part of said bead from said free edge of said skirt.

4,423,823

CONTAINERS

Josef T. Franek, Chorleywood; Paul Porucznik, St. Albans; Peter H. Serby, Newbury, and Christopher J. N. Tod, Steyning, all of England, assignors to Metal Box Limited, Reading, England

PCT No. PCT/GB80/00210, § 371 Date Aug. 10, 1981, § 102(e) Date Aug. 10, 1981, PCT Pub. No. WO81/01695, PCT Pub. Date Jun. 25, 1981
PCT Filed Dec. 5, 1980, Ser. No. 293,634
Claims priority, application United Kingdom, Dec. 8, 1979, 7942425
Int. Cl.³ B65D *25/14*
U.S. Cl. 220—77 **12 Claims**



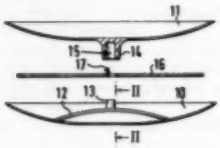
1. A metal can comprising a plurality of steel components having overlapping edge portions secured to each other in a seam, characterised in that at least one of the components is made from sheet comprising a laminate of steel with polypropylene, the latter being cast co-extensively over at least one side of the steel to a thickness in the range 0.01 to 0.10 mm, at least one said polypropylene layer of the overlapping edge portions in said seam being disposed between the steel layer of said edge portions, and said steel layers being securely and substantially permanently bonded together solely by means of the said cast polypropylene between them and without any adhesive layer in the seam.

4,423,824

CLOSURE DEVICE

John A. Varadell, Bagshot, England, assignor to Shell Internationale Research Maatschappij B.V., The Hague, Netherlands

Filed Mar. 29, 1982, Ser. No. 362,606
Claims priority, application United Kingdom, Apr. 7, 1981, 8110878
Int. Cl.³ B65D 41/52, 51/00
U.S. Cl. 220—281 11 Claims



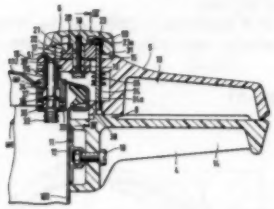
1. A closure device comprising a base and a lid, the lid being a resiliently deformable disc generally centrally resiliently mounted on the base and capable of flexing reversibly between and maintaining two stable dished conditions, respectively an externally convex closed form, in which the rim area of the disc bears on a member selected from the group consisting of said base or a member about said base, and an externally concave open form, in which the rim of the disc is spaced away from the base, said resilient mounting of the lid being by resilient bridge means spanning at least part of said base.

4,423,825

STEAM PRESSURE COOKING POT

Gerd D. Baumgarten, Wilnsdorf-Wilden, Fed. Rep. of Germany, assignor to Heinrich Baumgarten KG Eisen-und Blechwarenfabrik, Neunkirchen, Fed. Rep. of Germany

Filed Nov. 12, 1982, Ser. No. 441,150
Int. Cl.³ B65D 45/00
U.S. Cl. 220—316 14 Claims



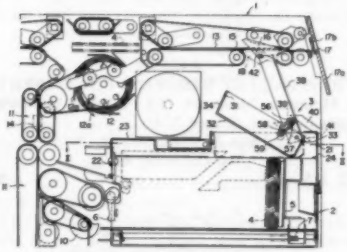
1. In a steam pressure cooking pot, in which the lid can be releasably secured to the pot with the interpositioning of a seal ring, preferably by a bayonet connection, including respective radially projecting handles which are secured on the lid and on the pot and which are arranged one above the other in the closed position, including if desired a pressure limiting valve and including a discharge valve which can be closed by overpressure in the steam pressure cooking pot, the improvement comprising wherein the handle which is secured on the lid is provided with a control knob which preferably extends at least partially radially inwardly over the lid edge, wherein the discharge valve is mounted, preferably below the control knob, on the lid and the movable plunger of the discharge valve can be moved between a blow-off position and a closing position, wherein the plunger rests directly or indirectly on an annular first cam surface which is constructed on the control knob, wherein the cam surface in connection with the control knob permits various positions of the plunger in the discharge valve, namely a cooking, a blow-off and an open position, wherein with the control knob there is associated a further annular cam surface which, like the first cam surface, is fixed against rotation with respect to the control knob and on which slides a spring-biased slide, the free end of which cooperates with the handle which is secured on the pot.

4,423,826

NOTE SUPPLY CONTAINER WITH REJECT RECEIVER FOR BANK NOTE DISPENSER

Akira Hirata, and Takashi Shichinohe, both of Tokyo, Japan, assignors to Laurel Bank Machine Company, Tokyo, Japan

Filed Jan. 28, 1982, Ser. No. 343,593
Claims priority, application Japan, Feb. 2, 1981, 56-13947
Int. Cl.³ B65H 7/00; G07G 5/00
U.S. Cl. 221—100 4 Claims



1. A bank note disbursing machine in which notes are drawn, one at a time, out of a note receiving box and transferred toward a payment opening when the notes are normal ones and accumulated into a reject box when the notes are not normal ones characterized in that the note disbursing machine is formed with a reject pool section (3) above an uppermost note receiving box (2), wherein the uppermost note receiving box (2) comprises a receiving box body, an upper cover (21) facing the reject pool section (3) rotatably mounted on the receiving box body, a reject box (32) rotatably mounted on the upper cover (21), a cover (38) rotatably mounted on the reject box (32) for covering an opening (31) of the reject box (32), and a pull-up link (56) connecting the reject box (32) and the cover (38) to be partially rotatable together.

4,423,827

AUTOMATIC RESETTING APPARATUS FOR STORING AND DISPENSING OBJECTS

Jean Guigan, 9, rue Jean Mermoz, 75008 Paris, France

Filed Apr. 10, 1981, Ser. No. 252,988
Claims priority, application France, Apr. 10, 1980, 80 08041
Int. Cl.³ B65G 59/06
U.S. Cl. 221—129 30 Claims

1. Automatic resetting apparatus for storing and dispensing objects, said apparatus comprising:

means including a side wall defining vertical piegon-holes for storing stacks of objects, said pigeon-holes including a horizontal hinged trap-door defining a bottom of each pigeon-hole, said pigeon-holes being disposed in at least one horizontal row and forming a rack;

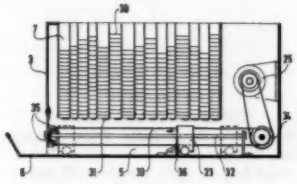
one ejector mechanism per pigeon-hole, said ejector mechanism being housed in a flat body or casing which fits vertically into a cut-out portion at the lower part of said side wall of the pigeon-hole and being operatively positioned with respect to said trap-door and designed to close the bottom of the pigeon-hole and to support the stack of

objects contained in the pigeon-hole, and a clamping shoe carried by said ejector mechanism which allows the last but one object of the stack to be jammed against a side wall of the pigeon-hole during the opening of the trap-door;

one moving carriage per rack of pigeon-holes which carriages moves along the rack;

guide and drive means for each moving carriage;

first means on said carriage for selectively operating said ejector mechanisms to jam the clamping shoe against said last but one object and then open said trap-door;



second means on said carriage for automatically resetting the ejector mechanism previously selectively operated to close said trap-door and release said clamping shoe, in that order, after dispensing of the last object of the stack in response to continued movement of said carriage;

motor means for engaging said drive means for moving said carriage; and

means for collecting the objects removed from the pigeon-holes.

4,423,828

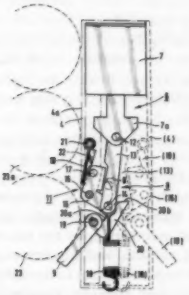
GOODS DISCHARGE MECHANISM AND GOODS STORAGE AND DISCHARGE SYSTEM OF AUTOMATIC VENDING MACHINE

Nobuyasu Tanaka, Yokkaichi; Hiroshi Tominaga, Higashinamachi; Minoru Fujita, Ooyasumachi; Hajime Tanaka, Yokkaichi; Takahisa Hattori, Tsu; Akira Yasuda, Yokkaichi, and Shigeya Kato, Suzuka, all of Japan, assignors to Fuji Electric Company, Ltd., Kawasaki, Japan

Filed Jul. 20, 1981, Ser. No. 284,956

Int. Cl.³ G07F *11/04*

U.S. Cl. 221—129 **9 Claims**



1. In an automatic vending machine having a vertically extending goods passage of a goods storage shelf, said goods passage being adapted to store cylindrical goods in a rolling condition; a goods discharge mechanism disposed in the vicinity of the lower end of said goods passage and being adapted to discharge said goods one by one in accordance with a discharging command, comprising:

a first retainer member adapted to be extended into and retracted from said goods passage so as to engage, when extended, the lowermost good to prevent the latter from being discharged;

a second retainer member adapted to be extended into and retracted from said goods passage so as to engage, when extended, the second lowermost good to prevent said second lowermost good and following goods from being discharged;

a solenoid having a movable core adapted to be attracted by said solenoid and biased in the direction opposite to the direction of the attraction;

a transmission mechanism adapted to transmit the movement of said solenoid to both of said retainer members so as to alternately move said retainer members into and out of said goods passage;

and wherein the portion of each retainer member adapted to engage said goods has a width substantially equal to the corresponding dimension of said goods but a depth less than about one-half the depth of the transmission mechanism and solenoid, and wherein the width of said transmission mechanism and said solenoid are less than about one-half the width of said retainer member and are disposed at one side of said goods passage, so that when two discharging mechanisms are arranged in back-to-back relation, said transmission mechanisms and said solenoids of said discharging mechanisms are laterally adjacent each other and so that the distance between adjacent goods storage shelves is about equal to the depth of one transmission mechanism and associated solenoid.

4,423,829

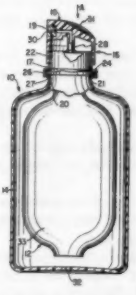
APPARATUS FOR CONTAINING AND DISPENSING FLUIDS UNDER PRESSURE AND METHOD OF MANUFACTURING SAME

Hyman Katz, Montreal, Canada, assignor to Container Industries Inc., Londonderry, N.H.

Filed Aug. 28, 1980, Ser. No. 182,115

Int. Cl.³ B65D *37/00*

U.S. Cl. 222—95 **50 Claims**



1. An apparatus for containing and dispensing a fluid medium under pressure comprising:

(a) substantially inert flexible means defining an inner region for containing the fluid medium under pressure and capable of being folded about one axis in its empty condition and expanded at least in directions substantially transverse to said axis when filled with the fluid medium under pressure;

(b) a sleeve disposed outwardly of and surrounding said flexible container means, said sleeve having a generally fabric-like configuration and being generally resilient at least in directions substantially transverse to said axis;

(c) a resilient tubular member positioned outwardly of said sleeve, said resilient tubular member extending at least over the length of said sleeve and being expandable in directions substantially transverse to said axis when said flexible con-

tainer means is filled with the fluid medium under pressure; and

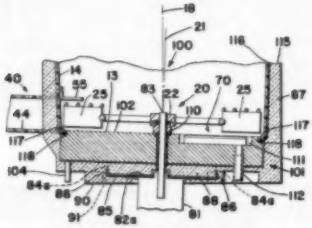
(d) valve means connected to said flexible container means and adapted to substantially prevent evacuation of said flexible container means under normal conditions and capable of selectively providing communication between said inner region of said flexible container means and the outside atmosphere thereby to permit selective amounts of the pressurized fluid medium to exit said flexible container due to the generally inward forces provided by said resilient member in its generally expanded condition.

4,423,830

APPARATUS FOR STORING AND DISPENSING PARTICULATE ICE

Charles M. Lentz, Leon Valley, and Craig A. Swanson, San Antonio, both of Tex., assignors to Stainless Icetainer Company, San Antonio, Tex.

Filed Aug. 25, 1980, Ser. No. 181,321
Int. Cl.³ B67D 5/62
U.S. Cl. 222—146 C **24 Claims**



1. Apparatus for dispensing particulate ice and beverage, comprising:

a. an ice bin having upright walls;

b. a cold plate in a bottom of the bin, said cold plate having heat exchange means for cooling beverage flowing therethrough by melting of ice in the bin and atop the cold plate;

c. an ice dispensing chute extending from the bin; and

d. an ice dispensing rotor directly above the cold plate, said rotor being selectively rotatable for expelling particulate ice out of the bin and into the dispensing chute, said rotor having:

(1) a plurality of arcuately spaced apart paddlewheels on the outside of the rotor, for said expelling of the ice into the chute,

(2) entry means on top of the paddlewheels for precluding entry of oversize ice into arcuate spaces between adjacent paddlewheels, and

(3) a substantially open center section within the paddlewheels and entry means, the oversize ice being freely passable through the center section and onto the cold plate, for consumption of the oversize ice as cooling medium.

19. In beverage dispenser apparatus having an ice bin, and a cold plate heat exchanger at the bottom of the bin, with ice being placeable in the bin and upon the plate for cooling beverage passed through the plate;

the improvement comprising a unitized bin construction having:

a. a rabbet around an upper surface of the cold plate, said upper surface being the bottom of the ice bin;

b. an upright tubular shell mounted in the rabbet and to the plate, said shell extending upwardly and being the side wall of the ice bin;

c. adhesive watertightly sealing the shell in and to the rabbet;

d. thermal insulation physically secured to and enclosing the outside of both of the shell and the cold plate, said insulation structurally retaining the shell to the plate and having a substantially planar bottom surface and skin; and

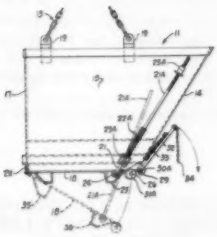
e. means for mounting of the bin, cold plate and insulation in and to the apparatus, said mounting means being on the insulation bottom surface.

4,423,831

DROP-BOTTOM BOX

Richard L. Sipley, Cuyahoga Falls, Ohio, assignor to Apex Welding, Inc., Bedford, Ohio

Filed Jul. 15, 1981, Ser. No. 283,498
Int. Cl.³ B67D 3/00
U.S. Cl. 222—185 **2 Claims**



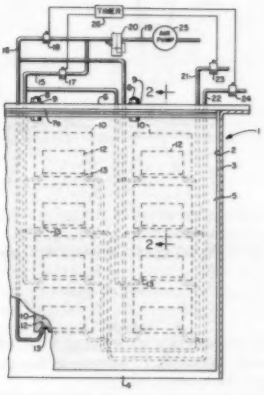
1. In a drop-bottom box having side walls defining a space between them for accommodating material and a bottom wall being hingedly connected to a first said side wall of the box, said bottom wall upon being swung upwardly to the level of the lower portions of said side walls retaining the material in the box, the improvement comprising a pair of hook members carried by the box at a distance from, and opposite of, said first side wall, said hook members being swingable on a common axis in parallel arcs, a pair of stud members carried by said bottom wall and extending laterally outwardly therefrom on opposite sides of the box at a distance from said first wall in positions to be engaged by, and held in the bight of, said hook members, a rod operatively connecting said hook members to cause the hook members to swing in unison on said common axis in parallel arcs, an actuating member connected to said rod to rotate the same and to swing said hook members, the said box being adapted to be lowered to rest upon a supporting surface and to be raised at an elevation above said supporting surface, the said hook members having outer arcuate surfaces engageable by said stud members upon the box being lowered toward the supporting surface, and to cammingly swing the hook members in their respective arcs to hookingly engage the said stud members, the stud members hookingly engaged in said hook members holding said bottom wall up to the level of the lower portions of side walls to retain material in the box, actuation of said actuating member to swing said hook members to disengage said stud members upon the raising of the box above said supporting surface permitting said bottom wall to swing downwardly to permit material in the box to fall therefrom, and engaging means mounted on the outboard ends of said stud members for engaging the said supporting surface upon lowering of the box and guarding said hook members against engagement with said supporting surface.

4,423,832

INFLATABLE LINER FOR PARTICULATE BULK CARGO RECEPTACLES

Hugh Boyd, Tallmadge, Ohio, and John J. Kane, Erie, Pa., assignors to Goodyear Aerospace Corporation, Akron, Ohio

Filed Jul. 29, 1981, Ser. No. 288,080
Int. Cl.³ B65G 69/08
U.S. Cl. 222—203 7 Claims



1. An inflatable liner assembly for mounting on the interior surface of a container wall to assist in maintaining the flow of bulk particulate material from the container, said liner assembly comprising:

A. a plurality of inflatable members at space locations along said interior surface;

B. a flexible cover sheet loosely covering said members and said surface;

C. the cover sheet being attached along its upper edge to the container to suspend it within the container;

D. flexible sling means loosely supporting the inflatable members between the cover sheet and the container wall to permit limited multi-directional movement of the inflatable members with respect to the cover sheet and the adjacent container wall when the members are alternately inflated and deflated, each of the inflatable members lying loosely within the sling means in a substantially horizontal position and resting on the bottom of the sling means; and

E. means supplying a fluid under pressure to the inflatable members.

4,423,833

REFRACTORY IMMERSION SPOUT

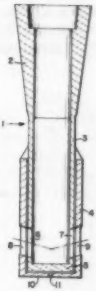
Werner Richter, Krefeld, Fed. Rep. of Germany, assignor to Didier-Werke A.G., Wiesbaden, Fed. Rep. of Germany

Filed Jan. 5, 1982, Ser. No. 337,273
Claims priority, application Fed. Rep. of Germany, Jan. 16, 1981, 3101219
Int. Cl.³ B22D 41/08
U.S. Cl. 222—591 4 Claims

1. In a refractory immersion spout for the continuous casting of a metal melt from an intermediate container into an ingot mold, said immersion spout being of the type including a refractory spout member including an upper portion adapted to be connected to an intermediate container and a lower portion adapted to be at least partially immersed in a melt bath, said spout member having a pouring channel and outlet openings extending laterally from said pouring channel at a level adapted to be below the level of a slag-covered upper surface of the melt bath, and a refractory sleeve covering the outer surface of at least that part or said lower portion of said spout member adapted to be immersed in the melt bath, the improvement comprising:

said spout member comprising an extrusion product resulting from the extrusion of a material including 30–75% alumina and 10–30% carbon, with said carbon being aligned longitudinally of said spout member as a result of said extrusion;

said sleeve comprising an isostactically compressed member formed of a highly refractory material;



the thickness of said lower portion of said spout member being less than the thickness of said upper portion of said spout member, said reduction in thickness resulting from a reduction of the outer size of said spout member; and

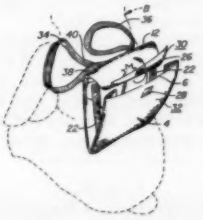
said sleeve being cemented onto the outer surface of said lower portion of said spout member by an alumina-rich refractory cement.

4,423,834

CONVERTIBLE BACKPACK/CAPE

Anne K. Rush, P.O. Box 9223, Berkeley, Calif. 94709

Filed Dec. 4, 1981, Ser. No. 327,327
Int. Cl.³ B65D 30/10
U.S. Cl. 224—151 7 Claims



1. An article of manufacture for use by a wearer as a backpack or as a cape, the article comprising:

a generally rectangular piece of material having side edges, a bottom edge and a top edge, having inner and outer material surfaces;

side flaps extending substantially along said side edges and having inner and outer side flap surfaces;

a top flap extending from said top edge and having inner and outer top flap surfaces;

strap means, connected to the piece of material near the top edge, for supporting said piece of material and flaps therewith against the back of the wearer; and

means mounted along the inner side flap surfaces for removably attaching a lower portion of each said side flap to an upper portion of the respective side flap when said side flaps are first folded inwardly to overlie the outer material surface and then said piece of material and side flaps

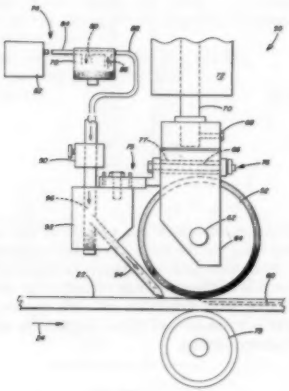
therewith is folded so that upper and lower portions of the outer material surface are opposed and said top and bottom edges are generally proximate one another, whereby said piece of material and said flaps form the cape before folding and form the backpack when so folded.

4,423,835

METHOD OF IMPOSING A DAMAGE FREE SCORE IN A REFRACTORY PIECE

Charles J. Hyatt, and James L. Oravitz, Jr., both of Cheswick, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Oct. 2, 1981, Ser. No. 307,816
Int. Cl.³ C03B *33/02*
U.S. Cl. 225—2 **11 Claims**



1. A method of imposing a damage free score in a refractory piece, comprising the steps of:

entrapping a particle of grit material between a scoring wheel and the surface of said refractory piece with an initial biasing force having a magnitude sufficient to damage the surface of said refractory piece thereby; and from the point of said surface damage,

moving said scoring wheel and said refractory piece relative to one another along a selected path of scoring while biasing said scoring wheel and said refractory piece toward one another with a biasing force having a magnitude sufficient to impose a damage free score in said refractory piece upon encountering said surface damage.

4,423,836

APPARATUS FOR IMPOSING A DAMAGE FREE SCORE IN A REFRACTORY PIECE

Charles J. Hyatt, Cheswick, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Oct. 2, 1981, Ser. No. 307,817
Int. Cl.³ C03B *33/02*
U.S. Cl. 225—96 **11 Claims**

1. Apparatus for imposing a damage-free score in a piece of refractory material, comprising:

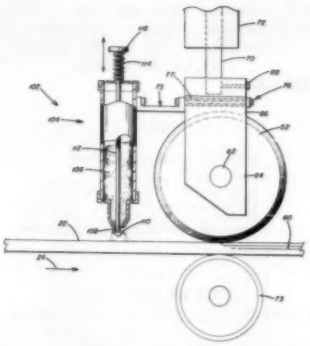
a scoring wheel;

means for biasing said scoring wheel toward the surface of said refractory piece;

means for providing a plurality of particles of grit material upon the surface of said refractory piece;

means for moving said scoring wheel and said plurality of particles relative to one another to pass said biased scoring wheel through said plurality of particles to damage the surface of said refractory piece and to initiate a damage free score within said refractory piece; and

means for removing said plurality of particles of grit material from the surface of said refractory piece after said biased



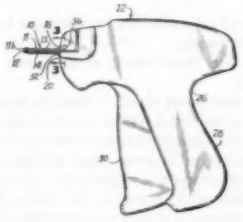
scoring wheel has passed through said plurality of particles.

4,423,837

NEEDLE CONSTRUCTION FOR TAG ATTACHERS

Alan Clements, Tappan, N.Y., assignor to Ben Clements & Sons, Inc., South Hackensack, N.J.

Continuation-in-part of Ser. No. 251,671, Apr. 21, 1981, abandoned. This application Aug. 12, 1981, Ser. No. 291,521
Int. Cl.³ B65C *7/00*
U.S. Cl. 227—67 **22 Claims**



1. A needle for use in tag attachers comprising an elongated body having first and second ends, the first end of said body being attachable in an opening in a tag attacher and the second end of said body having a point, said elongated body having a longitudinally extending bore and a longitudinally extending slot in alignment with said bore, said elongated body having a collar larger than said opening in said tag attacher proximate the first end of said body, said collar abutting against an outer surface of said tag attacher when said needle is secured in said opening of said tag attacher.

4,423,838

SELECTABLE SEPARATION AND CAPACITY IRRIGATION LINE

Eldad Dinur, Kibbutz Naan, Israel, assignor to Naan Mechanical Works, Kibbutz Naan, Israel

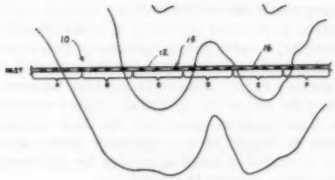
Filed Feb. 4, 1981, Ser. No. 231,177
Claims priority, application Israel, Feb. 4, 1980, 59305
Int. Cl.³ A01G *25/00*
U.S. Cl. 239—1 **11 Claims**

1. A custom designed, topographically matched irrigation line having desired output flow characteristics therealong comprising:

a liquid flow conduit couplable to a source of liquid under

pressure and arranged to be disposed along a support surface having known topographical characteristics;

a multiplicity of liquid discharge means associated with said conduit along the length thereof and having their inputs coupled to said conduits at selected fixed locations arranged along the length of said conduit so that the spacing between pairs of adjacent discharge means varies along



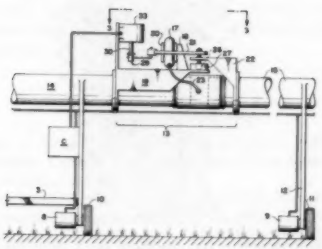
the conduit in accordance with the topographical characteristics of the support surface for compensating for pressure changes therein produced by said topographical characteristics such that the flow rates of liquid through the individual discharge means per unit length of conduit over various portions of the conduit are in a desired proportional relationship.

4,423,839

ALIGNMENT CONTROL SYSTEM FOR LATERAL IRRIGATORS

James R. McConnell, 650 Ford St., Colorado Springs, Colo. 80915

Filed Feb. 22, 1982, Ser. No. 351,022
Int. Cl.³ B05B *3/18*
U.S. Cl. 239—1 **30 Claims**



1. In a lateral irrigator having a first unit and a wing extending outwardly therefrom in which one of said first unit and said wing advances in a first direction at a first rate of speed, said lateral irrigator having a joint means for permitting said first unit and said wing to move laterally relative to each other substantially along a reference line extending from the one of said first unit and said wing substantially perpendicular to said first direction, said lateral irrigator further having an operational mode in which the other of said first unit and said wing alternately leads and lags said reference line in an oscillating manner, the improvement comprising:

first means for sensing changes in the lateral displacement of the first unit and wing relative to each other substantially along said reference line, and

second means for dampening the oscillations of the other of said first unit and said wing about said reference line in response to the lateral displacement changes sensed by said first means.

14. A method of operating a lateral irrigator having a first unit and a wing extending outwardly therefrom, said method comprising the steps of:

(a) advancing one of said first unit and said wing in a first direction at a first rate of speed,

(b) permitting said first unit and said wing to move laterally relative to each other substantially along a reference line extending from the one of said first unit and said wing substantially perpendicular to said first direction,

(c) initiating a first operational mode in which the other of said first unit and wing tends to alternately lead and lag said reference line in an oscillating manner,

(d) sensing changes in the lateral displacement of the first unit and wing relative to each other substantially along said reference line, and

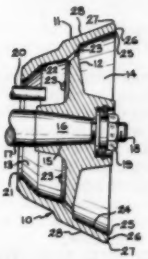
(e) dampening the oscillations initiated in step (c) in response to the lateral displacement changes sensed in step (d).

4,423,840

ROTARY ATOMIZER BELL

Kenneth J. Coeling, Toledo, Ohio, assignor to Champion Spark Plug Company, Toledo, Ohio

Filed Mar. 9, 1981, Ser. No. 241,620
Int. Cl.³ B05B *5/02*
U.S. Cl. 239—3 **3 Claims**



3. An improved method for coating with liquid paint comprising the steps of: rotating a rotary atomizer bell about an axis at a speed of at least 10,000 rpm; applying a high voltage on said bell; supplying a continuous flow of paint to an interior conical flow surface on said bell adjacent a minimum diameter of such flow surface; discharging atomized electrostatically charged paint particles from a paint discharge edge at a flat front end of said bell; providing a sharp discharge edge between said front end and said interior flow surface and providing between an exterior surface of said bell and said front end a radius of from at least 0.040 inch up to the bell wall thickness at said front end.

4,423,841

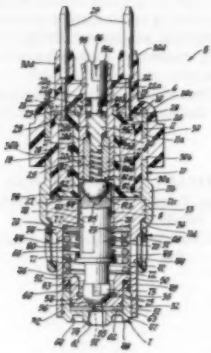
ELECTROMAGNETIC FUEL INJECTOR WITH PIVOTABLE ARMATURE STOP

James D. Palma, Grand Rapids, Mich., assignor to General Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 343,431, Jan. 28, 1982. This application Feb. 24, 1982, Ser. No. 351,963
Int. Cl.³ F02M *51/06*
U.S. Cl. 239—585 **4 Claims**

1. An electromagnetic fuel injection valve including a housing means defining a generally cylindrical bore terminating at one end in a fuel discharge passage means located at a spray tip end of the housing means; a solenoid pole piece means extending into said bore and being fixed at one end to said housing means so as to extend at its free end axially within said housing a predetermined axial extent, said solenoid pole piece means having a flat stop surface at its free end; an armature means operatively associated with a valve member at one end thereof operatively positioned in said bore for movement in valve opening and closing directions to open and close the fuel discharge passage means, the opposite end of said armature means

having a central ball socket therein; said solenoid pole piece means including a solenoid coil to effect movement of said armature means in one direction upon energization of said coil; and an armature stop member having a flat surface on one end thereof and being spherical opposite said flat surface, said armature stop member being pivotally positioned in said ball socket with said flat surface thereof extending outwardly of



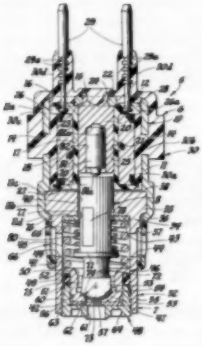
said armature means a predetermined distance for engagement with said pole piece means to limit travel of said armature means in a valve opening direction, said pivot member being pivotable as required to achieve full contact of said flat surface with said flat stop surface of said solenoid pole piece due to slight variation of centerline parallelism between said solenoid pole piece and said armature means.

4,423,842

ELECTROMAGNETIC FUEL INJECTOR WITH SELF ALIGNED ARMATURE

James D. Palma, Grand Rapids, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 24, 1982, Ser. No. 351,964
Int. Cl.³ F02M *51/06*
U.S. Cl. 239—585 **3 Claims**



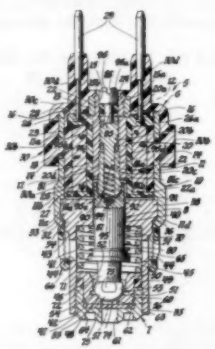
1. An electromagnetic fuel injector including a housing means defining a generally cylindrical stepped bore having an internally threaded enlarged diameter bore portion at one end thereof and defining an abutment shoulder intermediate its end; a spray tip means in said bore portion, said spray tip means including a spray tip adjustably threaded in said bore portion and a valve seat/director means slidably received in said bore portion and axially located in one direction by said spray tip, a solenoid pole piece means operatively positioned in the opposite end of said bore in said housing means, said valve seat/director means defining a valve guide means, a valve seat and a discharge passage therein; an armature having a semi-spherical valve at one end thereof operatively positioned in said bore for movement in valve opening and closing directions relative to said valve seat with said valve being reciprocably guided by said valve guide means; said solenoid pole piece means including a solenoid coil to effect movement of said armature in one direction upon energization of said coil; a guide washer guidingly encircling said armature intermediate its ends and being slidably received in said bore portion so as to abut against said abutment shoulder; a valve spring operatively positioned for normally biasing said valve into engagement with said valve seat; and, a spring means positioned in said bore between said valve seat/director means and said guide washer whereby to apply a bias force so as to operatively fix them within said housing means as aligned by said armature means whereby they are then operative to serve as a guide for said armature during reciprocating movement thereof.

4,423,843

ELECTROMAGNETIC FUEL INJECTOR WITH ARMATURE STOP AND ADJUSTABLE ARMATURE SPRING

James D. Palma, Grand Rapids, Mich., assignor to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 343,431, Jan. 28, 1982. This application Feb. 24, 1982, Ser. No. 351,970
Int. Cl.³ F02M *51/06*
U.S. Cl. 239—585 **2 Claims**



1. An electromagnetic fuel injection valve including a housing means defining a generally cylindrical bore terminating at one end of a fuel discharge passage means located at a spray tip end of the housing means; a solenoid pole piece extending into said bore and being fixed at one end to said housing means at the opposite end of said bore from said spray tip end, said solenoid pole piece having a stepped bore therethrough with a portion thereof internally threaded, said solenoid pole piece terminating at its free end in a flat surface; an armature means having a valve member at one end thereof is operatively positioned in said bore for movement in valve opening and closing directions to open and close the fuel discharge passage means, the opposite end of said armature means having a central ball guide socket therein; said solenoid pole piece including a solenoid coil to effect movement of said armature means in one direction upon energization of said coil; a pivot member having a flat surface on one end thereof and being spherical opposite said flat surface, said pivot member being located so that said spherical end of the pivot member extends below said pole piece so as to be pivotally positioned in said ball guide socket with said flat surface thereof extending outwardly of said armature means for fixed engagement with said pole piece, said pivot member thus cooperating with said pole piece and said

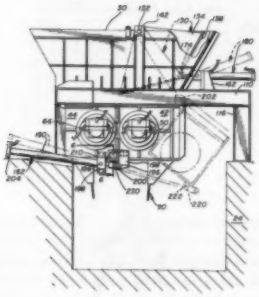
armature means to limit travel of said armature means in a valve opening direction.

4,423,844

APPARATUS FOR SHREDDING MATERIALS

William A. Sours, and James F. Sullivan, both of Dallas, Tex., assignors to Triple/S Dynamics, Inc., Dallas, Tex.

Filed Oct. 2, 1981, Ser. No. 308,133
Int. Cl.³ B02C 25/00
U.S. Cl. 241—35 21 Claims



1. A material shredder comprising:

a cutting chamber having a moveable cutter unit and a fixed cutter unit therein for shredding material fed into the cutting chamber;

means for moving said moveable cutter unit away from said fixed cutter unit when a blockage occurs in said cutting chamber to permit passage of the blockage through the cutting chamber; and

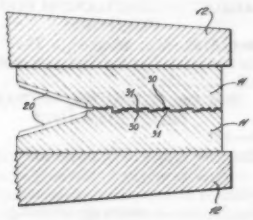
releasable lock means for selectively locking said moveable cutter unit to said fixed cutter unit when in the operating position.

4,423,845

REFINER PLATES

William C. Frazier, and Robert S. Charlton, both of British Columbia, Canada, assignors to MacMillan Bloedel Limited, Vancouver, Canada

Continuation-in-part of Ser. No. 95,612, Nov. 19, 1979, abandoned. This application May 12, 1981, Ser. No. 262,810
Claims priority, application United Kingdom, Oct. 4, 1979, 7934555
Int. Cl.³ B02C 7/12
U.S. Cl. 241—261.3 18 Claims



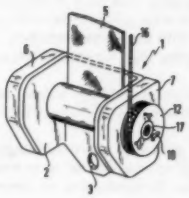
1. In a pair of refiner plate sets, each plate set mounted on a disc, the pair of plate sets positioned on a common axis with opposing surfaces facing each other, the improvement of a series of hard spots placed at different radial distances from the axis on at least one of the surfaces of the pair of plate sets.

4,423,846

RETIGHTENER FOR AUTOMATIC SAFETY BELT ROLL-UP DEVICES

Artur Föhl, Schorndorf, Fed. Rep. of Germany, assignor to Repa Feinstanzwerk GmbH, Alfdorf, Fed. Rep. of Germany

Filed Oct. 2, 1981, Ser. No. 307,882
Claims priority, application Fed. Rep. of Germany, Oct. 6, 1980, 3037738; Aug. 10, 1981, 3131637
Int. Cl.³ A62B 35/02; B65H 75/48
U.S. Cl. 242—107 50 Claims



1. In a retightener for an automatic safety belt roll-up device having a winder mounted on a belt shaft and biasing means for biasing the winder in a belt retraction direction, and with a power reservoir which can be triggered in case of a crash and with an energy transducer which acts upon the belt shaft of the automatic winder after triggering the power reservoir, causing the automatic winder to perform a rotary retightening motion, the combination therewith wherein

(a) said energy transducer is a rotatable pulling means pulley,

(b) coupling means for coupling the rotatable pulling means pulley with the belt shaft, for performing the rotary retightening motion after triggering the power reservoir,

(c) flexible pulling means connecting the pulley to the power reservoir to impart energy from the power reservoir to energize the pulley to effect both the coupling connection with the belt shaft and the retightening motion of the belt shaft after triggering the power reservoir, and

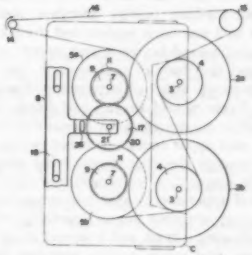
(d) holdback means to restrain said rotatable pulling means pulley from forming said coupling connection until said power reservoir is triggered.

4,423,847

TAPE REEL DRIVING MECHANISM

Katsumi Yamaguchi, and Hitoshi Okada, both of Toda, Japan, assignors to Clarion Co., Ltd., Japan

Filed Sep. 28, 1981, Ser. No. 306,085
Claims priority, application Japan, Sep. 30, 1980, 55-138081[U]
Int. Cl.³ G11B 15/32
U.S. Cl. 242—200 6 Claims

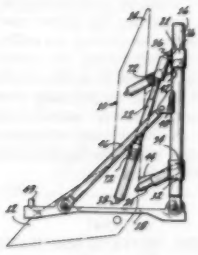


1. A reel base driving mechanism in a reverse type magnetic tape recording/playing device, comprising;

a forward-drive reel base;

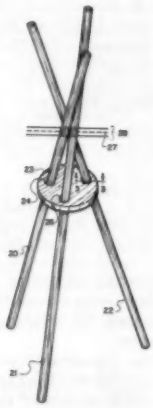
a reverse-drive reel base;
a first shaft to rotatably support said forward-drive reel base;
a second shaft to rotatably support said reverse-drive reel base;
a forward-drive pulley and forward reel drive block for driving the forward-drive reel base, both mounted on said first shaft so as to rotate independently of each other;
a reverse-drive pulley and a reverse reel drive block for driving the reverse-drive reel base, both mounted on said second shaft so as to rotate independently of each other;
a movable engagement means provided with an input member engageable with said pulleys and an output member engageable with said reel drive blocks, the input member coupling with the output member;
a belt engaging said forward-drive and reverse-drive pulleys;
a driving means to always rotate said forward-drive and reverse-drive pulleys by way of said belt in opposite directions; and
a switching means to move said engagement means to the forward or reverse side so as to make said input member engage the forward-drive or reverse-drive pulley and make said output member engage the forward-drive or reverse-drive block whereby the forward or the reverse reel base is selectively driven.

4,423,848
CRASHWORTHY HELICOPTER SEAT
Bernard Mazelsky, West Covina, Calif., assignor to Ara, Inc.
Filed Oct. 1, 1980, Ser. No. 192,958
Int. Cl.³ B64D *25/04*
U.S. Cl. 244—122 R **15 Claims**



2. A crashworthy helicopter seat comprising:
a seat member including a seat back section and a seating section;
energy absorbing means connected between said seat member and the frame of said helicopter, said energy absorbing means including upper energy absorber means connected between said seat back section and the frame of said aircraft, intermediate energy absorber means connected between said seat back section and the frame of said aircraft and disposed between said upper energy absorber means and the floor of said aircraft, and lower energy absorber means attached between said seat back section and the frame of said aircraft and disposed between said intermediate energy absorber means and the floor of said aircraft, said upper energy absorber means and said intermediate energy absorber means being adapted to absorb energy in connection with motion thereof induced by a crash, said upper energy absorber means and said intermediate energy absorber means absorbing energy in a first stage following a crash and a second stage following said first stage, said upper energy absorber means and said intermediate energy absorber means each absorbing energy at a higher level of force during said first stage following a crash and at a lower level of force in a second stage following said first stage, said lower energy absorber means being adapted to absorb energy through motion induced by a crash, said energy absorption being at a force level which is intermediate between the first stage force level of said upper energy absorber means and the first stage force level of said intermediate energy absorber means.

4,423,849
SELF-SUPPORTING STRUCTURE
Peter J. Jordan, Charlotte, N.C., assignor to Henry M. Kramer, Charlotte, N.C.
Filed Jun. 14, 1982, Ser. No. 387,861
Int. Cl.³ F16M *11/38*
U.S. Cl. 248—165 **10 Claims**



1. A self-supporting structure comprising a plurality of legs extending angularly relative to each other, a clinch plate, said clinch plate having a group of holes extending therethrough and corresponding in number to the number of legs and each of said holes being defined by upper and lower marginal edges and having cross-sectional dimensions corresponding to but greater than the cross-sectional dimensions of a corresponding leg to receive said leg by hand manipulation, said legs engaging the clinch plate at the upper and lower marginal edges of their respective holes to define a first zone of support at the clinch plate and extending angularly toward each other from the clinch plate and engaging each other at a zone of convergence spaced from the clinch plate to define a second zone of support.

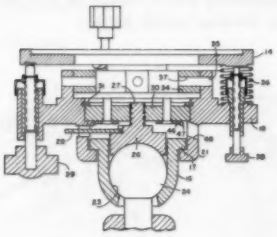
4,423,850
FINE ADJUSTING MECHANISM FOR A LEVEL PLATFORM
Alva W. Bass, Arab, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Aug. 17, 1981, Ser. No. 293,580
Int. Cl.³ F16M *11/14*
U.S. Cl. 248—181 **3 Claims**

1. A platform for support of an item to be leveled comprising:
a. a pedestal;
b. a housing having an outwardly extending annular flange, said housing connected to said pedestal;
c. means for connecting said housing to said pedestal including a shaft having a ball on its distal end extending into said housing for engaging relation with the lower internal surface thereof;
d. a lower support member supported on said housing, said

lower support member having an inwardly extending annular flange for bearing engagement with said outwardly extending annular flange of said housing;

e. a locking plate secured to said support member, said locking plate having a notched surface;

f. a locking cap secured in threaded relation with said locking plate having a curved lower surface for receiving said ball therein;



g. a locking handle secured to said locking cap adapted to rotate said locking cap relative to said locking plate for engaging said ball and clamping said annular flanges; and

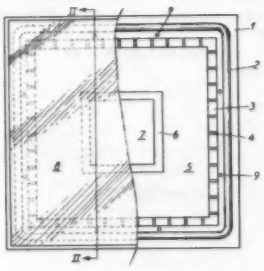
h. said housing including an opening for receiving a prying tool for engagement of said notched surface for rotation of said locking plate relative to said locking cap for fine adjustment of the position of said locking cap with respect to said ball.

4,423,851

RUBBER CLOTH FOR COPYING MACHINES

Svend A. Heitmann, Sortemosevej 191, 2730 Herley, Denmark

Filed Aug. 12, 1981, Ser. No. 292,289
Int. Cl.³ G03B *27/64*
U.S. Cl. 248—362 **3 Claims**



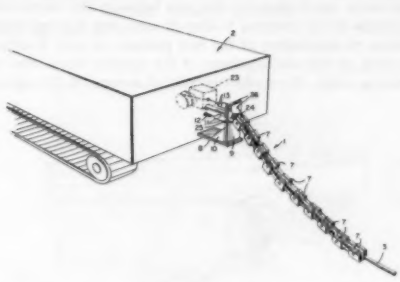
1. In a rubber cloth having an active field for supporting a substrate against a glass plate comprising a rubber cloth having a bead of deformable impervious material near its edge to form an airtight fitting with the glass plate; means for evacuating the space within said bead between the rubber cloth and the glass plate said means positioned outside of the active field, and a bearing surface having a plurality of aspirating ducts said bearing surface positioned between and in communication with the active field and the means for evacuation of the space between the rubber cloth and the glass plate.

4,423,852

APPARATUS FOR LIFTING A FLEXIBLE CABLE

George J. Conroy, Bethel Park, and Melvin N. Ackerman, Pittsburgh, both of Pa., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Nov. 2, 1981, Ser. No. 317,652
Int. Cl.³ B66D *3/00*
U.S. Cl. 254—264 **3 Claims**



1. An apparatus for lifting and stiffening a predetermined length of flexible cable is attached to the rear of a machine body and comprises a plurality of generally rectangular-shaped blocks, each block having flat sides, a convex-shaped front face and a concave-shaped back face and a longitudinal channel therethrough for mounting each block on the cable; the front face of one block facing the back face of the successive block, each block having at least one longitudinal hole from front to back in the lower portion thereof for passage of a block retaining wire therethrough, and

at least one retaining wire for keeping the blocks closely together and longitudinally oriented along the length of the cable when said blocks are not in abutment, said retaining wire passing through the lower longitudinal hole provided in each block, the first end of said retaining wire being attached to the back face of the rearmost block, means mounted on said machine body for tensioning said retaining wire, the second end of said retaining wire being attached to said means for tensioning said retaining wire;

a frame for mounting said apparatus to the machine body, said frame having a base plate which is anchored to the machine body, a bearing plate for preventing lateral movement of the blocks when the cable is lifted; said frame having an aperture of sufficient diameter to accommodate the cable, and an additional aperture of sufficient diameter to accommodate the retaining wire therethrough;

a further means passing through said blocks for drawing said blocks into abutment with one another to thereby form a rigid support to lift the cable from a ground surface.

4,423,853

CABLE-STRINGING SUPPORT BLOCK

Daniel R. Davis, Sr., 692 Ralph Rd., Conyers, Ga. 30207

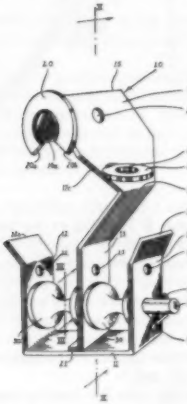
Continuation of Ser. No. 102,892, Dec. 12, 1979, abandoned. This application Aug. 4, 1981, Ser. No. 290,016
Int. Cl.³ B66D *3/04*
U.S. Cl. 254—390 **4 Claims**

4. A support block which is adapted to hang from an existing cable suspended laterally overhead for supporting cable during its installation which comprises:

(a) a support member having an inverted V-shaped section, the upper ridge thereof being disposed parallel to the existing cable; portions of the support member which intersect to form the inverted V-shaped section being adapted to rest on the existing cable; the upper ridge being approximately centered above the center of gravity of the support block, so that the support block quickly assumes an equilibrium posi-

tion once it is hung from the existing cable and rapidly returns to that position when it is displaced during the installation of cable;

(b) a bumper which is rigidly attached at spaced points to a leading edge of the support member, the bumper having a pair of end portions each of which extends over the leading edge and generally downwardly from the points of attachment of the bumper thereto, the end portions defining a passageway with a neck, the neck being of substantially narrower width than the distance between the intersecting portions of the inverted V-shaped section at the uppermost points of attachment of the end portions to said V-shaped section, so that dislodgement of the support block from the existing cable, during any rotational motion of the support



member relative to the existing cable, is impeded; the apex of the bumper being higher than said portions of the support member which intersect to form the inverted V-shaped section, thereby preventing the leading edges of either of two such adjacent support blocks from being pulled onto the upper surface of the other support block;

(c) the support member having an angular frame; the frame defining a structure having opposing edges between which the cable being installed is passed sidewise; and

(d) at least one roller connected to the support member, each roller supporting one and only one cable during its installation; the center of gravity, during most of a cable installation, being approximately located in a vertical plane which bisects the longitudinal axis of a roller.

4,423,854

ROADWAY BARRIER

Lincoln C. Cobb, Dallas, Tex., and Raymond A. Wardell, Downsview, Canada, assignors to International Barrier Corporation, Toronto, Canada

Continuation-in-part of Ser. No. 97,228, Nov. 26, 1979, abandoned. This application Nov. 7, 1980, Ser. No. 203,819

Int. Cl.³ A01K *3/00*

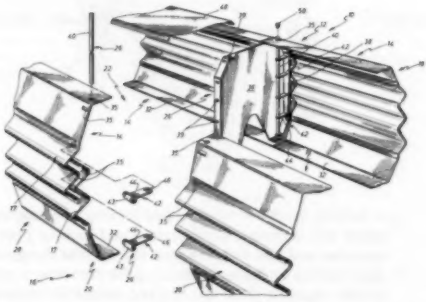
U.S. Cl. 256—13.1 **58 Claims**

1. A roadway barrier component adapted to be assembled on a supporting surface with corresponding barrier components removably connected to opposed ends thereof for forming an elongated dismountable roadway barrier for flanking a roadway, the barrier being deformable under vehicle impact to gradually redirect a straying vehicle coming into contact therewith, the barrier component comprising:

(a) a pair of panels to be positioned along a lower edge of each panel on such a supporting surface in laterally spaced relationship to define a filler cavity between their internal surfaces for receiving a displaceable ballast material to support the component on such a supporting surface and to provide a medium for dissipating impact energy during use;

(b) panel connection means for use in removably connecting the panels together in their laterally spaced relationship;

(c) each panel having panel fitting zones for use in removably connecting the panels of the barrier component to panels of corresponding barrier components to form an elongated roadway barrier having at least one elongated outer surface which is generally smooth and free of outwardly projecting obstructions in at least one direction parallel to the length of the barrier;



(d) the barrier component being adapted to provide a lesser impact resistance in a lower zone than in a central impact zone of the barrier component during vehicle impact therewith to combat vehicle ramping; and

(e) the central impact zone of at least one panel being formed to provide an elongated beam stiffness along the length of the panel to distribute an impact force along the length of the panel during use and thus encourage re-direction of an impacting vehicle along the length of the barrier.

4,423,855

THERMOCHEMICAL DRILLING AND SEPARATING PROCESS FOR SiO_2 CONTAINING MINERALS AND DEVICE FOR CARRYING OUT THE PROCESS

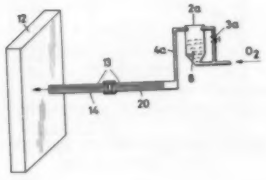
Rudolf Kallenbach, Birkeshöh 12, D 5882 Meinerzhagen 1, Fed. Rep. of Germany

Filed Nov. 5, 1975, Ser. No. 628,875

Claims priority, application Fed. Rep. of Germany, Jul. 17, 1975, 2531918

Int. Cl.³ B23K *7/08*

U.S. Cl. 266—74 **12 Claims**



1. A device for thermochemically drilling and separating SiO_2-containing minerals comprising:

a mixer including a swirl chamber for mixing a flux with oxygen, and means for regulating the amounts of flux and oxygen mixed together;

a consumable oxygen lance for carrying out the drilling and separating operation, coupled to said mixer, said lance having an elongated combustion tube, and a plurality of combustion wires disposed in said tube defining channels therebetween for the flow of flux and oxygen therethrough.

4,423,856

CONTROLLED COOLING APPARATUS FOR HOT ROLLED WIRE RODS

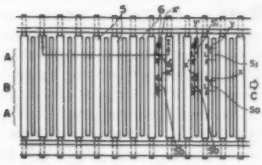
Eiji Takahashi, Nishinomiya; Shinichi Shimazu; Yukio Wada, both of Kobe; Ichiro Iwami; Takashi Nishiwaki, both of Kakogawa; Toshikazu Nishiyama, Akashi, and Yutaka Ichida, Osaka, all of Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

Filed Mar. 18, 1982, Ser. No. 359,231

Claims priority, application Japan, Mar. 18, 1981, 56-41221; Mar. 18, 1981, 56-41222

Int. Cl.³ C21D 9/573

U.S. Cl. 266—106 2 Claims



1. A controlled cooling apparatus for a wire rod coiled into loops immediately after hot rolling and being transported with said loops laid flat with a space of a predetermined pitch from one another on a cooling bed provided with a conveying means, comprising:

a plurality of nozzles for projecting cooling fluid from below the cooling bed to cool the coiled wire rod during transportation thereof wherein each of said nozzles is open in a transverse direction of the cooling bed with a nozzle opening area ratio of from 0.8 to 1.2, and wherein each of said nozzles is disposed for projecting the cooling fluid at an angle of from 60° to 120° with respect to the plane of the cooling bed.

4,423,857

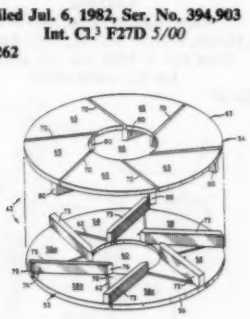
SPACER FOR BATCH COIL ANNEALING

Nicholas Muzak, Hamilton, and Montague J. Robinson, Campbellville, both of Canada, assignors to Stelco Inc., Hamilton, Canada

Filed Jul. 6, 1982, Ser. No. 394,903

Int. Cl.³ F27D 5/00

U.S. Cl. 266—262 6 Claims



1. A spacer for vertically separating coils in an annealing furnace, the spacer comprising a lower segmental plate and an upper segmental plate, ribs between the segmental plates and affixed thereto and a porous medium disposed between the segmental plates, whereby the porous medium can be heated by hot gas passing therethrough and can radiate heat to the inside surfaces of the segmental plates, the porous medium being loosely enough packed to be easily permeable to such hot gas, the porous medium being a wire mesh material selected from the group comprising: mild steel, stainless steel, inconel.

4,423,858

TUYERE OR NOZZLE

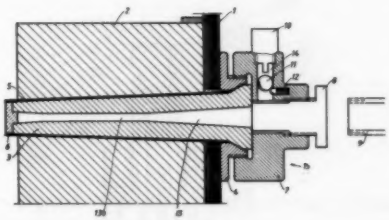
Artur Östlund, Linköping, Sweden, assignor to Stal-Laval Apparat AB, Sweden

Filed Jun. 2, 1982, Ser. No. 384,410

Claims priority, application Sweden, Jun. 4, 1981, 8103528

Int. Cl.³ C21B 7/16; C21C 5/48

U.S. Cl. 266—270 6 Claims



1. A device for injecting a substance into a metallic melt in a container, said device comprising

an elongated body which is capable of extending through an opening in the wall of the container containing the metallic melt, said elongated body defining a substance flow channel which extends from a first end of the elongated body which is locatable externally of the container wall to a second end which can communicate with the metallic melt inside the container,

a cover means which includes a flow channel extending from a first side thereof to a second side, the second side of the cover means being abuttable against the first end of said elongated body such that the flow channel in the cover means is in communication with the flow channel in the elongated body to allow a flow of substance supplied to the flow channel in the cover means from the first side thereof to flow into the flow channel in the elongated body, said cover means including an elongated recess which communicates with the flow channel therein,

a first closure means removably attached to the second end of the elongated body to close off the associated mouth of the flow channel therein,

a second closure means located in the recess in the cover means, the second closure means being capable of blocking off the flow channel in the cover means,

an impulse means for axially moving the second closure means out of the recess and into the flow channel in the cover means, and

a third closure means which is removably attached to the first side of the cover means to close off the associated mouth of the flow channel therein.

4,423,859

IMPACT DAMPER

Rudolf M. R. Müller, Frankfurt am Main, Fed. Rep. of Germany, assignor to Profil-Verbindungstechnik GmbH & Co. KG, Fed. Rep. of Germany

Continuation of Ser. No. 169,169, Jul. 15, 1980, abandoned. This application Dec. 10, 1981, Ser. No. 329,412

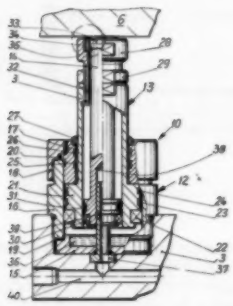
Claims priority, application Fed. Rep. of Germany, Jul. 17, 1979, 2928777

Int. Cl.³ F16F 7/00

U.S. Cl. 267—119 7 Claims

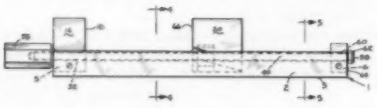
3. An impact damper for producing a graded spring resistance for reducing noise in a machine having a stationary member and a reciprocating impact member, comprising: an external casing fixed relative to said stationary member of said

machine and a telescopic cylinder normally engaging said reciprocating member of said machine, said telescopic member including an internal piston having a head engaging said reciprocating machine member and an external piston having an internal bore telescopically receiving and guiding said internal piston, said internal piston having an end portion adjacent said casing in sealed relation within said external piston bore, said casing enclosing the end portion of said external piston in sealed guided relation, said casing including an enclosed gas chamber located between said piston end portions and the base of said casing adjacent said machine stationary member, said internal piston having a central bore opening toward said



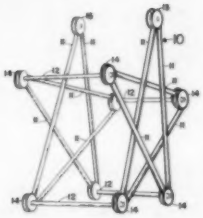
casing base, and a gas supply tube fixed relative to said casing telescopically extending into said internal piston bore, said gas supply tube communicating with a source of gas and having a lateral port spaced from its distal end, said external piston having a head which engages said reciprocating machine member when said internal piston is substantially fully received within said external piston, said pistons then telescopically moved within said casing under the force of said reciprocating machine member in unison, said gas supply tube port located in said tube such that the port is closed by entering said internal piston bore prior to said internal piston being fully received within said external piston, providing said graded spring resistance.

4,423,860
VISE CLAMP
Robert F. Windstrup, 1008 Oak Park Ave., Oak Park, Ill. 60302
Filed May 10, 1982, Ser. No. 376,406
Int. Cl.³ B25B *1/02*
U.S. Cl. 269—180 **4 Claims**



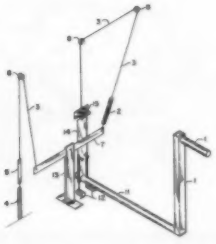
1. A vise comprising a longitudinal guide, a stationary jaw fixed with respect to said guide and having a work-engaging face generally normal to said guide, a jaw movable with respect to said guide longitudinally thereof and having a work-engaging face opposing said face on the stationary jaw, load bearing means cooperative with said guide for maintaining said movable jaw in squared relation to said fixed jaw, said guide comprising a frame having a pair of side rails with parallel top and bottom surfaces, said load bearing means simultaneously engaging said top and bottom surfaces of both rails upon application of a workload between the jaws, said movable jaw having a slot on each side thereof receiving the respective side rail therein, a first set of surfaces of the top and bottom sides of the slot arranged for full face engagement with the top and bottom surfaces of the associated side rail and providing said load bearing means, a second set of top and bottom surfaces on the top and bottom sides of each slot on the movable jaw intersecting the aforesaid top and bottom surfaces of the first set and forming vertically opposed apical edges providing a fulcrum for the movable jaw accommodating tilting thereof for quick adjustment.

4,423,861
ACROBATIC APPARATUS
Sharyn D. Venit, 2740 A Folsom St., San Francisco, Calif. 94110
Filed Jul. 15, 1981, Ser. No. 283,641
Int. Cl.³ A63B *7/02*
U.S. Cl. 272—61 **3 Claims**



1. An acrobatic apparatus comprising:
(a) two pentagonal frames, each frame comprising five strut members connected at their ends by corner pieces, said strut members being arranged to form, when viewed in side elevation, a five pointed star;
(b) four parallel dowels, each extending between two corresponding points of said pentagonal frames connected to said corner pieces;
(c) a bar, means connecting the ends of said bar to the uppermost corresponding points of said frames; and
(d) means supporting said bar spaced above the ground whereby said frame may swing freely when a user's body is engaged with one of said dowels.

4,423,862
ARM WRESTLING DEVICE
Jennings P. Hewitt, 6704 W. 14th St., Sioux Falls, S. Dak. 57106
Filed Jun. 8, 1981, Ser. No. 271,248
Int. Cl.³ A63B *23/00*
U.S. Cl. 272—67 **1 Claim**



1. A device for providing an adjustable clockwise and counterclockwise rotational resistance force in opposition to an individual user's rotation of the left or right forearm about the respective elbow joint, said device comprising:
(a) a base structure for receiving and supporting the remaining elements of said device,
(b) elbow receiving means for supporting and placement of

an elbow joint of a user, said receiving means being disposed at generally the frontal portion of said device,

(c) a rigid lever arm extending upward when at rest in proximity to said elbow receiving means, said lever arm having an upper portion for hand gripping by a user and a lower portion having a shaft extending therefrom for forming a horizontal axis of rotation, said shaft having an upwardly extending bar member attached to its opposite end, said bar member further having a guide post fixed thereabove, said lever arm being disposed so that a user subsequent to elbow placement can grasp said upper portion of said lever arm, and,

(d) adjustable rotational force resistance means being communicatively operable to both clockwise and counterclockwise rotation of said lever arm, said force resistance means being comprised of a fulcrum means attached to said base structure and having first and second tension force storing means attached to its opposing ends, said first tension force storing means further being attached at its opposite end to said base structure, said second tension force storing means being comprised of a cable and spring arrangement having the cable attached to the top portion of the bar member attached to said lever arm and further having the cable extending through said guide post member to provide clockwise and counterclockwise resistance forces in a generally equal manner as said lever arm is rotated, whereby,

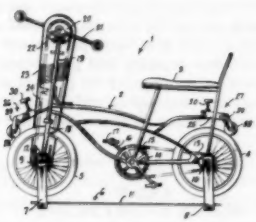
a user of said device subsequent to elbow placement and hand grasping of said lever arm utilizes said device for athletic or therapeutic purposes by overcoming said rotational resistance force, as either forearm is rotated about its respective elbow joint.

4,423,863

EXERCISING DEVICE

Romulo A. Figueroa, 2275 Taft Ave., Malate, Metro Manila, Philippines 3008

Filed May 12, 1982, Ser. No. 377,323
Int. Cl.³ A63B *21/22*
U.S. Cl. 272—73 **4 Claims**



1. An exercising device comprising:

a conventional bicycle frame,

a front and rear wheel rotatively mounted at the front and rear ends of said frame, respectively,

a base frame supporting said bicycle frame in such a manner that said wheels are elevated,

pedal operated means for rotating said rear wheel,

hand operated means for rotating said front wheel, and

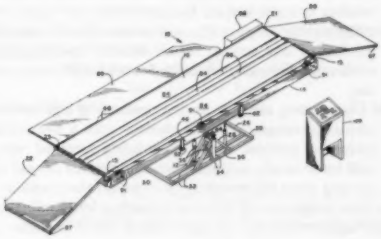
incrementally adjustable means for decreasing or increasing the frictional drag on each of said wheels to suit the needs of the exerciser.

4,423,864

ANGULARLY ADJUSTABLE SKI DECK

Sven E. Wiik, 2883 Burgess Creek Rd., Steamboat Village, Colo. 80499

Filed Oct. 13, 1981, Ser. No. 310,379
Int. Cl.³ A63B *69/18*
U.S. Cl. 272—97 **9 Claims**



1. An apparatus for simulating skiing and terrain encountered during skiing, comprising:

support means resting on a support surface;

an elongated frame having belt rollers rotatably mounted transverse thereto, said elongated frame pivotally connected to said support means to provide selective angular positioning of said frame between downwardly inclined and upwardly inclined positions corresponding to said terrain;

motive means pivotally connected to said frame adapted to pivotally move said frame relative to said support means;

an endless belt mounted around said belt rollers, said belt having two parallel slide tracks formed therein for simulating a ski track; and

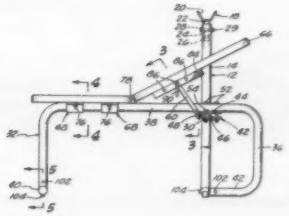
means for rotating said belt about said belt rollers and for varying the velocity of said belt rollers and said belt dependent on the angular position of said frame.

4,423,865

EXERCISE BENCH

Parker E. Mahnke, Glendale, Calif., assignor to Marcy Gymnasium Equipment Co., Alhambra, Calif.

Filed Jan. 15, 1982, Ser. No. 339,382
Int. Cl.³ A01B *13/00*
U.S. Cl. 272—123 **5 Claims**



1. An exercise bench comprising:

(a) a supporting frame, including:

(1) a first "U" shaped frame member having a pair of transversely spaced apart upstanding legs interconnected by a bight portion;

(2) a rigid cross-member disposed above said bight portion of said first frame member and interconnecting said legs thereof;

(3) a second frame member having at least one downwardly extending leg and a longitudinally extending portion, said longitudinally extending portion being

disposed in a crossing relationship with respect to said rigid cross-member;

(4) floor engaging means connected to said leg of said second frame member proximate the lower end thereof for providing stability to said frame member;

(5) a transversely extending cross-sectionally "U" shaped stabilizing plate having vertically spaced apart upper and lower walls defining an elongated transversely extending bearing surface therebetween, said upper wall being rigidly connected to said longitudinally extending portion of said second frame member and said lower surface being rigidly connected to said rigid cross-member;

(6) a supporting element having upstanding legs interconnected proximate one end thereof with a transversely extending portion, said portion being received with in said transversely extending bearing surface of said connecting plate for rotational movement therewithin;

(b) a first planar, bench portion extending longitudinally of said support member of said second frame member and rigidly connected thereto;

(c) a second planar bench portion hingeably interconnected with said first bench portion for pivotal movement relative thereto into various elevated positions through an acute angle with respect to said support member of said second frame member; and

(d) an interconnecting means carried by said second bench portion including spaced apart portions adapted to be releasably interconnected with said free ends of said upstanding legs of said supporting element and said second planar bench portion when said portion is disposed in various angular positions with respect to said support member of said second frame member.

4,423,866

GYMNASTICS/EXERCISING EQUIPMENT

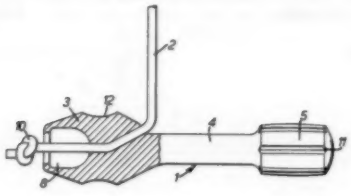
Edvard Stolba, Movien 2, N-1458 Fjellstrand, Norway

Filed May 15, 1981, Ser. No. 264,137

Claims priority, application Norway, May 28, 1980, 801576

Int. Cl.³ A63B *21/00*

U.S. Cl. 272—125 **5 Claims**



1. A gymnastics/exercising device comprising two separate elongated handles each of a length approximately that of a width of a human hand interconnected by means of an inelastic rope by which the length between the handles can be varied, wherein respective ends of the rope are secured to each of said handles at a middle section of the handles, said middle section having a circular cross section of smaller diameter than the end sections of the handle, and wherein one end section has a larger diameter than the other end section and contains a cavity interconnected with a channel means opening from said middle section in which a knotted end of the rope is retained for securing the rope to the handles, so that the length of said rope can be varied by winding the rope around the middle section of each handle to suit the user.

4,423,867

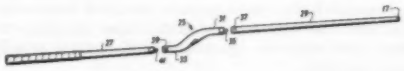
BILLIARD CUE WITH LATERAL OFFSET

William A. D. Wise, 28 Wollaston Ave., Apt. 17, Wollaston, Mass. 02170

Filed Jan. 21, 1983, Ser. No. 459,766

Int. Cl.³ A63D *15/08*

U.S. Cl. 273—68 **5 Claims**



2. A billiard cue, comprising:

a substantially straight handle portion, being smoothly tapered about its longitudinal axis;

a substantially straight ball-engaging portion, including a resilient ball-contacting tip, said ball engaging portion also being smoothly tapered about its longitudinal axis; and

an offsetting member, centrally positioned between and interconnecting said handle and ball-engaging portions, and contoured so as to match the taper of each of said portions at the respective point of contact therewith, for laterally offsetting the longitudinal axes of said portions from each other, while maintaining said axes parallel.

4,423,868

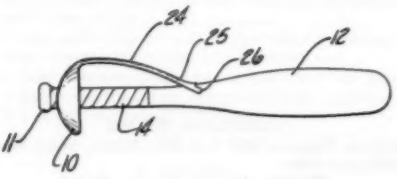
PROTECTIVE DEVICE FOR USE ON A BASEBALL BAT

Richard B. Younts, 2706 Elmore Dr., Springfield, Ohio 45505

Filed Dec. 2, 1981, Ser. No. 326,827

Int. Cl.³ A63B *59/06*

U.S. Cl. 273—72 R **2 Claims**



1. A protective device for the hands and wrists adapted to be carried on a bat having a knob and grip portion comprising, a first body portion adapted for attachment to said grip portion adjacent said knob and having a rim, an elongated second body portion disposed on said first body portion and adapted to shield the hands when grasping said grip, wherein said rim defines a cut away region opposite the position at which said second body portion is disposed on said first body portion and adapted to provide clearance for the wrists while swinging said bat.

4,423,869

GAMES RACKET FRAME

Robert C. Haines, Huddersfield, England, assignor to Dunlop Limited, London, England

Filed Nov. 27, 1981, Ser. No. 325,197

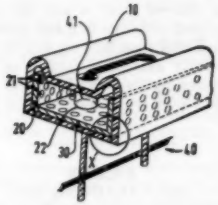
Claims priority, application United Kingdom, Dec. 3, 1980, 8038745

Int. Cl.³ A63B *49/10, 49/12*

U.S. Cl. 273—73 C **7 Claims**

1. A frame for a games racket, said frame consisting of a hollow moulding made from a plastics material and a rigid member, said rigid member being integrally moulded with said plastics material and completely embedded therein so as to reinforce said hollow moulding in a region corresponding to the crown portion of said frame, said rigid member having a

plurality of perforations the individual diameter of some of said perforations being non-uniform along their length whereby, when said rigid member is moulded integrally with said hollow plastics moulding, the plastics material penetrates said perforations and sets therein to lock said rigid member to said hollow moulding, said rigid member being of generally U-shaped channel section and being so positioned relative to said hollow moulding that the base of the U lies adjacent the strung area of the frame.



4,423,870

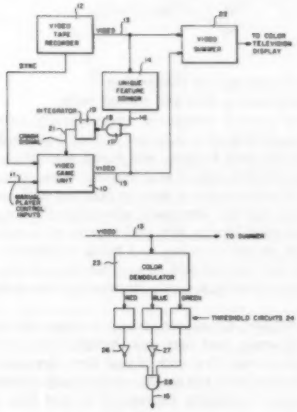
VIDEO GAME COLLISION DETECTION SYSTEM

Stephen D. Bristow, Los Altos Hills, Calif., assignor to Atari, Inc., Sunnyvale, Calif.

Continuation of Ser. No. 34,715, Apr. 30, 1979, abandoned. This application Feb. 22, 1982, Ser. No. 350,977

Int. Cl.³ A63F 9/22

U.S. Cl. 273—85 G **8 Claims**



1. An interactive video system for detecting collisions between an object generated by the video system and a player object responsive to manual control, the video system comprising:

a first video signal generator for providing a first video signal representing an object generated by the video system;

manual control means for providing control signals in response to manual manipulation;

a second video signal generator coupled to the manual control means for providing a second video signal representing a player object responsive to control signals;

logic means coupled to the first and second video signal generators for providing a collision signal in response to coincidence of said first and second video signals; and

detector means coupled to the logic means for providing an output signal in response to the duration of the collision signal exceeding a minimum time period.

4,423,871

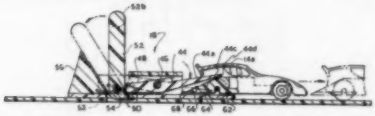
TOY VEHICLE GAME

Salvatore A. Mucaro, Maywood, N.J., assignor to Ideal Toy Corporation, Hollis, N.Y.

Filed Feb. 4, 1982, Ser. No. 345,870

Int. Cl.³ A63F 9/14

U.S. Cl. 273—86 R **14 Claims**



1. A toy vehicle game including a track and toy vehicle for operation on the track, and means for launching the vehicle and propelling it along the track, said track including a start position at which said launcher is located and an end position located above said start position whereby a vehicle launched onto said track at said start position traverses the track to the end position above the start position, said track including a pivoted track section which is normally maintained in a horizontal position and which pivots when the vehicle enters it to deposit the vehicle onto the start position of the track to return the vehicle to the launching means.

4,423,872

PINBALL GAME

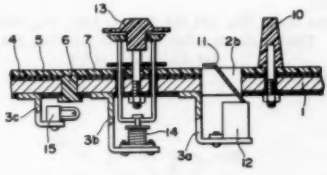
Kazuo Okada, Tokyo, Japan, assignor to Kabushiki Kaisha Universal, Tochigi, Japan

Filed Aug. 5, 1980, Ser. No. 175,683

Claims priority, application Japan, Aug. 11, 1979, 54-101804; Nov. 19, 1979, 54-148870; Nov. 19, 1979, 54-148871

Int. Cl.³ A63F 7/00; A63D 3/02

U.S. Cl. 273—121 A **3 Claims**



1. In a pinball game machine having a playing field board along the exposed upper surface of which a ball rolls; the improvement in which the playing field board is a metal plate having at least one layer of elastomeric material applied to said surface of the metal plate, the uppermost of said at least one layer being transparent and printed material beneath said transparent layer and visible through said transparent layer, a hole through said plate, said transparent elastomeric material closing said hole, and a plug of transparent plastic disposed in said hole beneath said transparent elastomeric material.

4,423,873

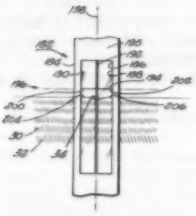
GOLF CLUB PUTTER ARRANGEMENT

Yukio Shiratori, 1806 Clear Creek Dr., Fullerton, Calif. 92633

Continuation-in-part of Ser. No. 915,618, Jun. 15, 1978, Pat. No. 4,212,467. This application Mar. 11, 1980, Ser. No. 129,339

Int. Cl.³ A63B *69/36, 53/10*

U.S. Cl. 273—163 A 24 Claims



1. In a golf club, the improvement comprising, in combination:

a club head;

an elongated longitudinally extending shaft means having a first end coupled to said club head, and a second end;

a grip means coupled to said second end of said shaft means;

said shaft means having:

a predetermined longitudinal axis extending between said grip means and said club head;

a peripheral surface spaced from said longitudinal axis;

planar walls in planes parallel to each other and parallel to said longitudinal axis defining a slot extending through said shaft means for a predetermined longitudinal length intermediate said club head and said grip means and said walls at least alignable in a vertical orientation for viewing through said slot and providing visual indicia means;

a front intersection at one intersection of said walls of said slot with said peripheral surface;

a rear intersection spaced from said front intersection and at another intersection of said walls of said slot with said peripheral surface; and

opaque indicia means on said shaft means and in said slot and viewable through said slot, and said opaque indicia means alignable in vertical and perpendicular orientations for viewing through said slot.

4,423,874

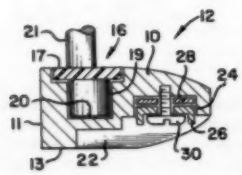
GOLF CLUB HEAD

Alfred O. Stuff, Jr., 1176-C Paseo Del Mar, Casselberry, Fla. 32707

Division of Ser. No. 231,981, Feb. 6, 1981, Pat. No. 4,340,229. This application Jun. 30, 1982, Ser. No. 393,643

Int. Cl.³ A63B *53/08*

U.S. Cl. 273—171 4 Claims



1. A putter head for a golf club comprising:

an elongate front face having a centrally located ball-contacting area;

an essentially continuous top surface having an approximate "D" shape wherein said front face represents the relatively straight portion of said "D" shape;

a sole plate extending rearwardly from said front face, a portion of said sole plate being curved upwardly from a point intermediate between said front face and the rear edge of said putter head;

at least three relieved areas in said sole portion disposed rearwardly from said front face and extending to said rear edge, said relieved areas defining at least two ribs forming said rearwardly extending portion of said sole plate thereby minimizing the area of said sole plate which will be in contact with the putting surface during a putting stroke.

4,423,875

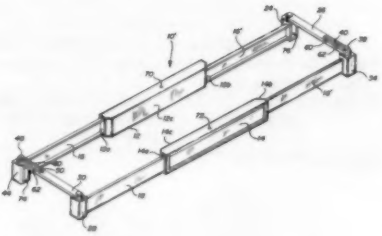
GOLF TRAINING AID

Gardner H. Miller, Albuquerque, N. Mex., assignor to Trustroke International, Inc., Albuquerque, N. Mex.

Continuation-in-part of Ser. No. 398,112, Jul. 14, 1982. This application Aug. 19, 1982, Ser. No. 409,418

Int. Cl.³ A63B *69/36*

U.S. Cl. 273—186 C 5 Claims



1. A golf training aid comprising:

a housing having first and second ends;

first and second elongated telescopically extendable rail means each having first and second ends and being connected to said housing and being selectively extendable from said first end of said housing to an operational position or retracted to a storage position with said housing;

third and fourth elongated telescopically extendable rail means each having first and second ends and being connected to said housing and being selectively extendable from said second end of said housing to an operational position or retracted to a storage position with said housing;

first elongated adjustable slide rail means having first and second ends, said first end thereof being pivotally connected to said first end of said first elongated telescopically extendable rail means, said second end thereof being selectively pivotally connected to said first end of said second elongated telescopically extendable rail means in said operational position to thereby rigidly couple said first ends of said first and second elongated telescopically extendable rail means in said operational position;

second elongated adjustable slide rail means having first and second ends, said first end thereof being pivotally connected to said first end of said third elongated telescopically extendable rail means, said second end thereof being selectively pivotally connected to said first end of said fourth elongated telescopically extendable rail means in said operational position to thereby rigidly couple said first ends of said third and fourth elongated telescopically extendable rail means in said operational position;

said first elongated adjustable slide rail means being disposed substantially perpendicular to said first and second elongated telescopically extendable rail means to thereby maintain said first and second elongated telescopically extendable rail means in a preselected spaced apart rela-

tionship throughout the entire length of said first and second elongated telescopically extendable rail means in said operational position;

said second elongated adjustable slide rail means being disposed substantially perpendicular to said third and fourth elongated telescopically extendable rail means to thereby maintain said third and fourth elongated telescopically extendable rail means in a preselected spaced apart relationship throughout the entire length of said third and fourth elongated telescopically extendable rail means in said operational position;

said first and second elongated adjustable slide rail means being disposed transversely to said housing to enable the golf training aid to collapse to a compact configuration; and

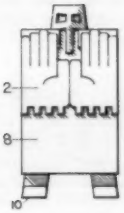
means for rigidly locking together said elongated telescopically extendable rail means and said elongated adjustable slide rail means in said operational position and said storage position.

4,423,876

GAME-TOY ANTHROPOMORPHIC (HUMAN-ROBOT-SHAPED) DOMINOES

Alvin L. Boyd, P.O. Box 5280, Austin, Tex. 78763

Filed Jan. 25, 1982, Ser. No. 342,483
Int. Cl.³ A63F *9/20*
U.S. Cl. 273—294 **1 Claim**



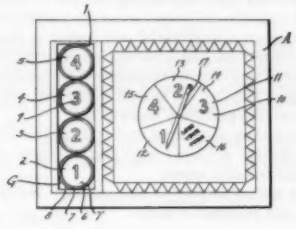
1. A new and improved set of game-toy domino figures that: has added to each piece a head-in-helmet at the top, legs-in-armor and feet-in-boots at the bottom, and hands-in-gauntlets on the front side, to achieve the appearance of a human-robot-shaped domino figure with a large flat area on the back which is divided into two equal panels of a top area and bottom area, with each panel having an incised (depressed) hexagonal pattern of 19 dots (five rows of dots, with top row of 3 dots, 2nd row of 4 dots, center row of 5 dots, 4th row of 4 dots, bottom row of 3 dots), with certain patterns of those dots selected to be imprinted in ink or paint in numerical equivalents in the following sequence (first number imprints in top panel half/second number imprints in bottom panel): 9/9, 8/9, 7/9, 6/9, 5/9, 4/9, 3/9, 2/9, 1/9, 0/9, 8/8, 7/8, 6/8, 5/8, 4/8, 3/8, 2/8, 1/8, 0/8, 7/7, 6/7, 5/7, 4/7, 3/7, 2/7, 1/7, 0/7, 6/6, 5/6, 4/6, 3/6, 2/6, 1/6, 0/6, 5/5, 4/5, 3/5, 2/5, 1/5, 0/5, 4/4, 3/4, 2/4, 1/4, 0/4, 3/3, 2/3, 1/3, 0/3, 2/2, 1/2, 0/2, 1/1, 0/1, 0/0, so that they can be used, just as traditional dominoes are used, to play established-rule domino games such as All Five (Muggins), All Threes, Block and Draw, Forth-Two, Matador, Sniff, Straight, Threes and Fives, Whist, etc.; will be produced in traditional 28- and 55-piece sets of double-sixes and double-nines from any color or any liquid casting medium such as metal, plastic or epoxy, or shaped or carved from other hard media such as wood, bone, stone or ivory; can be stacked, arranged, or lined-up in many variations and positions because of the exact design and placement of the flat helmet top, shoulder and boot-bottom surfaces, which provide stable positioning and loose interlocking, even upside-down; will retain the overall dimensions of traditional dominoes in a one-unit wide×two-units high×¼- to ½-units thick; are well-balanced in all positions, yet will easily tip over when hit or pushed by another piece to achieve the push-over ripple effect such as traditional dominoes do; has an overall physical appearance of a space-age robot with human shape; has extra-large gauntleted (gloved) hands to enhance the pushing characteristic and the physically aggressive visual personality of the design.

4,423,877

GAME APPARATUS

Don W. Cook, 677 Dougherty Terrace Dr., Manchester, Mo. 63011

Filed Sep. 20, 1982, Ser. No. 420,109
Int. Cl.³ A63B *67/12*
U.S. Cl. 273—317 **8 Claims**



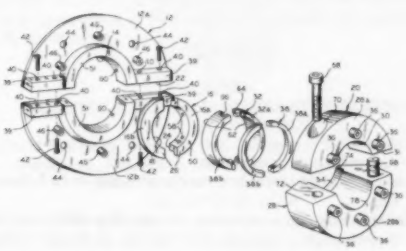
1. A game apparatus for play by a preselected number of players comprising a segmentally divided indicator, manually operable means associated with said indicator for chance segment selection, a plurality of playing pieces, there being an indicator segment corresponding to at least each playing piece, each of said playing pieces being of generally upwardly opening cup-shape character and of varying height, there being an elongated stick-like tool provided each player for manipulating a predetermined playing piece in an endeavor to dispose same in inverted position for effecting point scoring.

4,423,878

SEALING ASSEMBLY, KIT AND METHOD FOR ROTATABLE SHAFTS

Jesse W. Escue, 1010 Buell Ave., Joliet, Ill. 60435

Filed Mar. 29, 1982, Ser. No. 363,375
Int. Cl.³ F16J *15/34*
U.S. Cl. 277—1 **20 Claims**



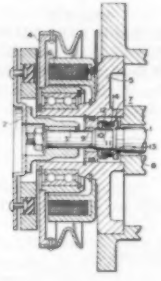
17. A method of aligning a sealing surface of a sealing member in a preselected plane in relation to a rotatable shaft, comprising:

providing said sealing member with means for adjusting the planar orientation of said sealing surface and means for securing said sealing surface in a planar orientation achieved with said adjusting means;

providing an aligning member adapted to be secured to said rotatable shaft, said aligning member having a reference surface lying in said preselected plane when said aligning member is secured to said rotatable shaft, said aligning mem-

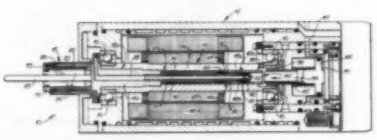
ber including means for securing said reference surface in said preselected plane;
securing said aligning member to said rotatable shaft in closely spaced relation to said sealing member with said reference surface in confronting relation to said sealing surface;
adjusting the planar orientation of said sealing surface of said sealing member with said adjusting means to lie in a plane lying generally parallel to the plane of said reference surface of said aligning member;
securing said aligning member to said rotatable shaft adjacent to said sealing member with said reference surface in contact with said sealing surface;
measuring the distance between said reference surface of said aligning member and said sealing surface of said sealing member at a plurality of points about the periphery thereof;
adjusting the planar orientation of said sealing surface of said sealing member with said adjusting means until said reference surface of said aligning member and said sealing surface of said sealing member are spaced equidistant substantially entirely about the periphery thereof; and
securing said sealing surface of said sealing member in said planar orientation achieved with said adjusting means by utilizing said securing means;
whereby said sealing surface of said sealing member may be aligned in said preselected plane.

4,423,879
MECHANICAL SEAL
Akira Takenaka, and Tatsuhiko Fukuoka, both of Toyota, Japan, assignors to Taiho Kogyo Co., Ltd., Aichi, Japan
Continuation of Ser. No. 123,626, Feb. 22, 1980, abandoned, which is a division of Ser. No. 895,072, Apr. 10, 1978, abandoned. This application Apr. 8, 1982, Ser. No. 366,811
Claims priority, application Japan, Apr. 12, 1977, 52/41838; Mar. 3, 1978, 53/24137; Mar. 3, 1978, 53/24138
Int. Cl.³ F16J *15/34*
U.S. Cl. 277—96.1 **10 Claims**



1. A combination comprising:
a mechanical seal including stationary means and a follower ring,
the stationary means including a seating ring which receives therethrough a rotatable shaft and has an annular sliding contact surface,
the follower ring being mounted to rotate with said rotatable shaft and has another annular sliding contact surface in slidable contact with the sliding contact surface of said seating ring when the shaft is rotated causing relative motion in one direction between said sliding contact surfaces,
each said annular sliding contact surface having a radially inner portion and a radially outer portion,
means for sealing a pressurized fluid, which consists of a liquid or a mixture of a gas and a liquid, in a zone radially outside of said follower ring, and
means for connecting the radially inside surface of said follower ring to inside air,
at least one of said annular sliding contact surfaces having means cooperative with the other said annular contact surface for avoiding the leakage of said fluid from said outside zone to said inside air, said leakage avoiding means comprising:
a circumferentially noncommunicating plurality of fine grooves in at least one of the annular sliding contact surfaces, said grooves having a closed outer end portion terminating radially short of the outer periphery of said annular sliding contact surface, said grooves having a depth in the range from as low as 0.05 mm up to about 1.0 mm and being less than about 1.0 mm wide, at least some of said grooves having closed radially inner ends, said grooves being oriented outwardly from the shaft in a rearward direction with respect to the direction of said relative motion, said grooves extending along a line approximately tangent to the radially inner edge of the corresponding annular sliding contact surface.

4,423,880
HYDRAULIC CHUCK
Wojciech B. Kosmowski, San Juan Capistrano, Calif., assignor to Cooper Industries, Inc., Houston, Tex.
Filed Feb. 23, 1981, Ser. No. 236,846
Int. Cl.³ B23B *31/30*
U.S. Cl. 279—4 **10 Claims**



1. A self-contained hydraulic chuck for use with high speed drills or other high speed rotational power tools comprising:
a housing;
a shaft having an axis and supported within the housing;
a hollow tubular plunger and a central structure within the shaft defining a first hydraulic fluid chamber;
a head section coupled to the shaft and extending from an end of the housing, said head section having a central opening;
a diaphragm secured within the central opening of the head section, said diaphragm and said head section defining a second hydraulic fluid chamber, said head section and said shaft having hydraulic fluid channel means for coupling the first chamber to the second chamber;
a collet, located within the central opening of the head section and abutting the diaphragm, for gripping a tool;
said hollow tubular plunger being co-axially movable on said central structure and within the shaft so as to vary the volume of the first hydraulic fluid chamber;
spring means for forcing the plunger in a direction which decreases the volume of the first hydraulic fluid chamber and compresses the hydraulic fluid, thereby flexing the diaphragm against the collet so as to force the collet inward to grip a tool; and
mechanical means for pushing the plunger against the force of the spring means, thereby reducing the pressure on the hydraulic fluid and preventing the diaphragm from being flexed, to thereby allow a tool to be inserted into or removed from the collet, said mechanical means being decoupled from said plunger when the chuck is gripping a tool.

4,423,881

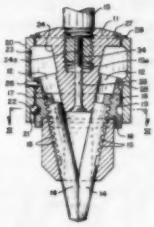
QUICK OPERATING CHUCK

Dennis M. Whitehead, 202 Terrace Ct., Trafford, Pa. 15085

Filed Jun. 21, 1982, Ser. No. 390,358

Int. Cl.³ B23B *31/12*

U.S. Cl. 279—62 **5 Claims**



1. In a quick operating chuck having a body portion with a plurality of longitudinal slots therein, a plurality of tool-gripping elements slidably positioned one in each slot and having circumferential threads on their exterior surfaces, a ring encircling the tool-gripping elements internally threaded to mesh with the threads of the tool-gripping elements, a rotatable sleeve surrounding the ring and means fixing the sleeve to the body portion against longitudinal movement therebetween, the improvement comprising a circumferential groove extending around the major portion of the exterior of the ring and captive means carried by the sleeve extending into the circumferential groove.

4,423,882

SHOPPING CART WITH BABY SEAT

Don A. Stover, Oklahoma City; Clarence W. Upshaw, Tuttle, and Warren N. Norman, Oklahoma City, all of Okla., assignors to UNR Industries, Inc., Chicago, Ill.

Filed May 10, 1982, Ser. No. 376,593

Int. Cl.³ B62B *3/00*

U.S. Cl. 280—33.99 B **22 Claims**

1. A shopping cart which comprises:

(a) a wheeled chassis;

(b) an elevated frame carried by said chassis;

(c) a basket defining a main lading-carrying space, said basket including a bottom wall secured to said elevated frame, two opposed side walls, and a gate at the front end of said cart, and having an open end at the rear thereof;

(d) a baby seat compartment secured to the rear portion of said elevated frame, said baby seat including a bottom wall, two opposed side walls, a front wall having an upright, closed position and an open position, the width of said baby seat front wall being less than the width of said lading-carrying basket said hinge for said baby seat front wall being located at a level at least as high as the bottom wall of said lading-carrying basket, said front wall being hinged at its bottom edge portion to permit it to be swung down from its closed position in the forward direction, when desired, to rest on the bottom wall of said lading-carrying basket, and a rear wall defining two openings to receive the legs of a baby seated in said baby seat; and

(e) latching means for providing a positive holding of said baby seat front wall to secure the same against movement in either the forward or rearward direction from its said upright, closed position while a baby is seated in the seat, said means being releasable when it is desired to swing said front wall down to rest on the bottom wall of said basket to increase the lading-carrying capacity of the shopping cart.

4,423,883

STEERING ARRANGEMENT FOR MOTOR VEHICLES

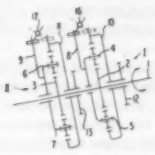
Henning Wallentowitz, Schanbach; Helmut Struck, Winnenden, and Karl-Heinz Richter, Kernen, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Dec. 22, 1980, Ser. No. 218,970

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1979, 2952087

Int. Cl.³ B62D *7/08*

U.S. Cl. 280—96 **15 Claims**



1. A steering arrangement for motor vehicles which includes a steering column means for transmitting turning motions to two steerable wheels, steering rod means connected to the two steerable wheels and to a steering gear arm means, characterized in that the steering gear arm means is divided into two parts with each part being respectively connected to one of the steerable wheels, a drive means is provided for driving the steering gear arm means, a planetary gear means is interposed between the secondary drive means and the steering column means, and in that a locking means is provided for alternatively locking a portion of the planetary gear means and a portion of the drive means.

4,423,884

BOOSTER AXLE CONNECTION SYSTEM FOR A TRAILER ASSEMBLY

David E. Gevers, Lafayette, Ind., assignor to Talbert Manufacturing, Inc., Rensselaer, Ind.

Filed Jan. 7, 1982, Ser. No. 337,864

Int. Cl.³ B62D *53/04*

U.S. Cl. 280—405 A **12 Claims**

1. A trailer assembly, comprising a main frame, pairs of laterally spaced wheels on tandem axles supporting the main frame, first suspension means connecting the tandem axles to the main frame, main frame connection means for coupling the main frame to a power unit, a secondary frame, at least one pair of laterally spaced wheels on a booster axle supporting the

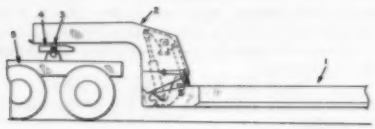
secondary frame, second suspension means connecting the booster axle to the secondary frame, and a booster axle connection system for coupling the secondary frame to the main frame, the connection system including a lever arm extending forward from the secondary frame, a support arm extending rearward from the main frame, variably positionable fulcrum means for pivotally connecting the support arm to the lever arm at one of at least two fulcrum points.

4,423,885

REMOVABLE GOOSENECK TRAILER

William R. Camey, and Larry E. Hasenberg, both of Kewanee, Ill., assignors to Hyster Company, Portland, Oreg.

Filed Sep. 11, 1981, Ser. No. 301,201
Int. Cl.³ B62D *53/06*
U.S. Cl. 280—423 B **13 Claims**



1. In a trailer, including a platform and gooseneck, an apparatus connecting the platform to the gooseneck comprising:

(a) a rotatable, detachable forward coupling means connecting one end of the platform to a forward location on the gooseneck;

(b) an arm having a first end rotatably attached to the gooseneck and a second end bearing on the platform at a location remotely to the rear of the forward coupling means, such that rotation of the arm will create a force couple about the forward coupling means resulting in the relative rotation of the gooseneck and platform;

(c) a link having a first end pivotally attached to the arm;

(d) a lever rotatably attached to the gooseneck at a first location and pivotally attached at a second location to the second end of the link, and;

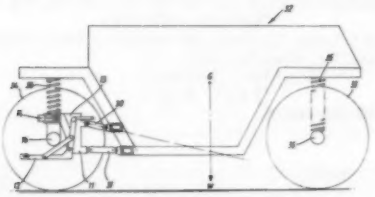
(e) means to rotate the lever attached to the lever at a third location remote from said second location.

4,423,886

PICK-UP HITCH MOUNTING ARRANGEMENT

William S. H. Taylor, Stockport, England, assignor to W. S. H. Taylor Engineering Developments Ltd., Stockport, England

Filed Mar. 22, 1982, Ser. No. 360,359
Claims priority, application United Kingdom, Mar. 23, 1981, 8109061
Int. Cl.³ B60D *1/00*
U.S. Cl. 280—496 **12 Claims**



1. A pick-up hitch arrangement for a vehicle having a driven axle comprising a rigid support frame and means for securing said frame to said driven axle, said vehicle comprising a body part and resilient suspension means on which said vehicle is supported, and pick-up hitch means pivotally mounted on the support frame, wherein pivotal attachment means are provided which connect said hitch arrangement to said body part thereby to allow at least a limited range of pivotal movement of said hitch arrangement relative to said body part about an axis located not rearwardly of the centre of gravity of said body part.

4,423,887

PASSIVE SAFETY BELT SYSTEM

Simon D. Packington, Bognor Regis, England, assignor to Britax (Wingard) Limited, England

Filed Dec. 22, 1981, Ser. No. 333,467
Claims priority, application United Kingdom, Jan. 10, 1981, 8100740
Int. Cl.³ B60R *21/10*
U.S. Cl. 280—802 **10 Claims**

1. In a motor vehicle having a seat located adjacent to a front-hinged door, a safety belt system comprising a shoulder strap, a lap strap and a common strap interconnected to form a three-point safety belt, the free ends of the shoulder and lap straps being connected to the rear edge of said door in proximity to the top and bottom corners thereof and the free end of the common strap being guided, at a location inboard of and adjacent to the bottom of the back of the seat, on to an inertia reel, the system further comprising first flexible puller means interconnecting a point of the safety belt which is inboard of the seat when the door is closed and a point on the vehicle in front of and above the knees of an occupant of the seat, second flexible puller means extending from a point on the vehicle in front of and above the knees of the occupant of the seat, when the door is open, to guide means which is slidable on both the first puller means and the common strap so as to vary the location along their length at which they are permitted to diverge from one another, and retractor means coupled to said inertia reel for reducing the effective length of the second puller means as said common strap is protracted from said inertia reel.

4,423,888

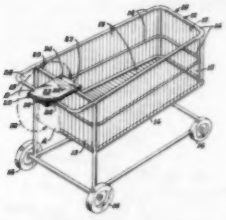
STORE CART WITH CLIPBOARD ITEM-RETENTION MEANS

William D. Addison, R.R. 3, Box 129, Greenfield, Ind. 46140

Filed Feb. 22, 1982, Ser. No. 350,645
Int. Cl.³ B42D *17/00*; G09F *19/00*
U.S. Cl. 281—45 **1 Claim**

1. For a store cart having a parcel receptacle which is supported by wheels accommodating movement of the receptacle throughout the store, and having a handle means extending transversely of the receptacle, and at a distance rearwardly of the receptacle, which provide manually-operable means by which the user may maneuver the receptacle in the store, and having a clipboard having retention means thereon for releasably retaining items desired for use in the store, the said clipboard being mounted on the store cart so as to carry the said items along with the receptacle and both conveniently accessible and visible to the user as the user moves with the receptacle about the store,

the improvement of the clipboard being mounted upon the handle means of the cart, and the clipboard is movably supported and movably interconnected to the cart thereby, and is movable between a first relatively lower and out-of-the-way position in which it hangs outwardly of the cart from the said handle means of the cart, and a second relatively higher and more-visible and item-presenting position, and in which in the second relatively higher position the clipboard is supported by two relatively spaced portions of the cart providing stable support of the clipboard, even though it is connected to the cart at only one of such portions, the portion of the cart which supports the clipboard even though there is no interconnection of the clipboard and cart at such place being the rearward transverse upper frame member of the parcel receptacle, the support of the clipboard in both its said first and second positions being independent of any movable inner wall means of the cart, and the support of the clipboard being such that in moving from its first relatively lower position to its second relatively higher position it is swingable rearwardly, upwardly, then forwardly, about 270°, and regardless of the position of any movable inner wall means of the cart or even whether the cart is provided with a movable inner wall means.

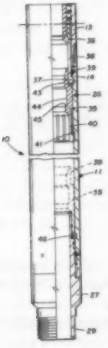


4,423,889

WELL-TUBING FXPANSION JOINT

Stanley A. Weise, Dallas, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Jul. 29, 1980, Ser. No. 173,302
Int. Cl.³ F16L *55/00*
U.S. Cl. 285—39 **2 Claims**



1. An expansion-contraction joint for connection between upper and lower sections of well tubing including:

a tubular housing with a lower end portion adapted for connection to the lower section of tubing;

a mandrel with an upper end portion adapted for connection to the upper section of tubing and a lower end portion telescoped into the housing,

sealing means carried by one of said mandrel and said housing and sealing therebetween intermediate opposite ends of said housing,

releasable locking means connected between said mandrel and said housing for normally supporting said mandrel in a central position against movement within said housing and being releasable to free said mandrel for movement in either longitudinal direction within said housing between fully collapsed and extended positions to compensate for expansion and contraction within said well tubing, said releasable locking means including,

a releasable latching member connectable between said lower end portion of said mandrel and said housing and normally latching said housing and said mandrel together, and

a wireline releasable, locking sleeve movable within said housing between an upper position locking said latching member against movement from its normally latched central position and a lower position releasing said latching member so said mandrel is free to slide within said housing, said lower position being located out of the way beneath the lower end of said mandrel when the latter is in its fully collapsed position, and said locking sleeve including,

a plurality of spring finger latches extending therefrom, with said housing having upper and lower mating recesses for said spring finger latches to releasably catch therein for holding said sleeve releasably within said housing in said upper and lower positions, respectively,

a stop collar connected to said housing and having an annular shoulder disposed between said housing and said mandrel, and means on said collar and housing preventing relative rotation therebetween and key means extending radially inward from said collar,

a longitudinal slot formed in said mandrel and receiving said key to lock said collar and said mandrel against relative rotational movement, and

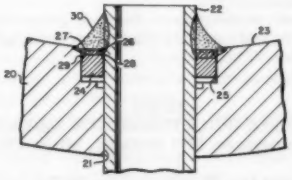
an annular abutment fixed to said mandrel and extending toward said housing for engagement with said annular shoulder to limit said mandrel to its fully extended position.

4,423,890

WELDED TUBE TO WALL JUNCTION

Charles D. Hackett, Tunnel Hill, Ga., and James R. Bray, Henegar, Ala., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 8, 1980, Ser. No. 213,701
Int. Cl.³ B23K *9/00, 35/16*
U.S. Cl. 285—189 **1 Claim**



1. A welded junction between the external surface of a tube and the surface of a drum wall, including,

a drum wall with an internal surface,

a tube hole through the drum wall,

a tube positioned within the tube hole and extending above the surface of the wall with a pressure boundary between the outside surface of the tube wall and the inside surface of the tube hole,

a counterbore from the internal surface of the drum and about the tube hole,

an insert ring positioned within the counterbore and about the tube with a pressure boundary between the ring and tube,

a first bevel on the upper edge of the inside surface of the ring forming a groove at the juncture of the ring and tube and above the pressure boundary,

a second bevel on the upper edge of the outside surface of the ring forming a groove at the juncture between the groove and counterbore above the pressure boundary between the tube and the inside wall of the tube hole,

a weld bead extending from the drum wall surface to the tube surface and over the two grooves formed by the ring, bevels, wherein the grooves provide ventilating passageways for vaporized surface materials to avoid penetration of the weld bead in its molten state.

4,423,891

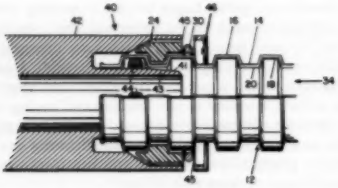
CORRUGATED HOSE COUPLING

William H. Menges, 149 Squan Beach Dr., Manaloking, N.J. 08738

Filed Sep. 28, 1981, Ser. No. 306,214

Int. Cl.³ F16L *37/08*

U.S. Cl. 285—305 **6 Claims**



1. A corrugated hose coupling apparatus comprising:

a length of corrugated hose having repetitive circular ridges and grooves alternating along its length;

connector means for mating with said hose, said connector means including at least one slot therein;

groove engaging means for engaging at least one of said grooves of said hose, said groove engaging means comprising a split lock ring;

O-ring means received in at least one of said grooves for sealing the connection between said hose and said connector means;

retaining means attached to said connector means for anchoring said connector means with respect to said groove engaging means, said retaining means comprising a spring clip located on the opposite side of said split lock ring from the end of said hose being coupled with said connector means, said spring clip being received in said slot in said connector means,

wherein said retaining means and said groove engaging means keep said connector means from disengaging from said hose.

4,423,892

SWIVELABLE QUICK CONNECTOR ASSEMBLY

Donald D. Bartholomew, 5771 McKinley, Marine City, Mich. 48039

Filed Oct. 29, 1980, Ser. No. 201,711

Int. Cl.³ F16L *37/14*

U.S. Cl. 285—319 **21 Claims**

1. A connector assembly for providing a swivelable quick connection, comprising:

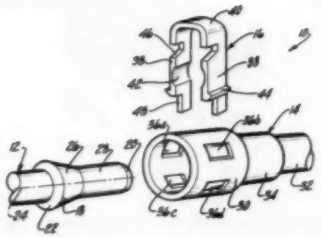
a tubular conduit adapted to convey fluid, having outwardly projecting annular surface means, formed at a predetermined distance from an end of said conduit to be connected, for providing a blocking wall portion disposed transversely to a central axis of said conduit;

a housing having axial bore means formed therein for receiving said conduit at a first end for providing a fluid path at a second end, said housing having an inwardly extending flange disposed at said first end thereof;

elastomeric ring means disposed in said bore means for providing a seal between said conduit and said housing;

annular bushing means disposing in said bore means of said housing for positioning said ring means and for guiding the insertion of said conduit into a sealing engagement with said ring means; and

retainer means, demountably coupled to said first end of said housing, for cooperating with said blocking wall portion of said annular surface means to resist the disconnection of said conduit from said housing;



said retainer means being made from a resilient material, and comprised of a circumferentially continuous ring having an outer diameter approximately corresponding to the diameter of said inwardly extending flange of said housing, jaw means projecting from a first side of said ring, and converging at one end and extending beyond said outer diameter of said ring at another end, for providing said cooperation with said annular surface means of said conduit, and tab means projecting radially outwardly from a second side of said ring for positioning said retainer means at said first end of said housing in cooperation with said jaw means.

4,423,893

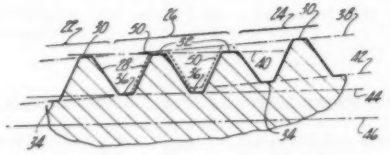
SELF-SEALING TAPERED THREAD FORM

Horace D. Holmes, 28576 Green Willow, Farmington Hills, Mich. 48024

Filed Feb. 18, 1981, Ser. No. 235,391

Int. Cl.³ F16L *25/00, 15/00, 21/00*

U.S. Cl. 285—334 **6 Claims**



1. A threaded fastener device comprising:

a female member including a body having a helical thread form thereon,

said thread form having a generally tapered cross-sectional shape and being defined by a pair of converging flanks, a thread crest, and a thread root,

a first portion of said thread root lying along a first reference axis inclined with respect to the longitudinal axis of said thread form,

a second portion of said thread root being radially spaced from said first reference axis toward said longitudinal axis, said threaded fastener device further including a male member having a body provided with a helical thread form thereon, said thread form being defined by a pair of

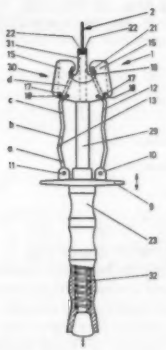
converging flanks, a thread crest and a thread root, the entire length of said last-named thread crest lying along a common reference axis.

4,423,894

CARPET-KNOTTING INSTRUMENT

Gerda Kaufmann, Gottlieb-Daimler-Str. 3, 7809 Denzlingen, Fed. Rep. of Germany

Filed May 6, 1981, Ser. No. 260,922
Int. Cl.³ D03J *3/00*; B65H *69/04*
U.S. Cl. 289—17 **17 Claims**



1. A carpet knotting apparatus for use in combination with a canvas or the like having successive pairs of spaced parallel threads with a clearance between the threads of each pair, comprising:

a. a guidance rod having a pair of opposed ends;

b. a mounting plate slideably mounted to one of said ends and adapted for reciprocable displacement longitudinally of said guidance rod;

c. a knotting head secured to said other end of said guidance rod and having a longitudinally projecting needle holder;

d. a knotting needle having a pair of generally parallel sides and a generally oblong shaped eyelet therethrough secured to said needle holder and extending longitudinally therefrom;

e. knotting thread positioning means disposed on said knotting head for positioning a loop of knotting thread with a pair of ends adjacent said knotting needle;

f. a pair of guidance slots disposed on either side of said knotting needle and associated with said knotting head and each of said guidance slots having guide means;

g. thread positioning means disposed on said needle holder for positioning said needle holder on one of said pairs of threads;

h. a pair of spaced cooperating legs articulably mounted to said mounting plate and displaceable therewith and each leg extending from said mounting plate to an associated one of said guiding slots and adapted for being guided by said guide means;

i. each of said legs having a hook end adapted for engaging and pulling an associated one end of said loop of knotting thread; and,

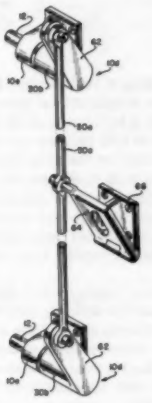
j. whereby longitudinal displacement of said mounting plate toward said knotting head displaces each of said legs and said hook ends with engage and pull an associated end of said loop of knotting thread through said eyelet for knotting said loop of knotting thread.

4,423,895

DEAD-BOLT-TYPE LOCKING MEANS, AND AN ASSEMBLY THEREOF

Thomas C. Mosley, Jr., 8628 E. Granada Rd., Scottsdale, Ariz. 85257

Filed Apr. 22, 1981, Ser. No. 256,388
Int. Cl.³ E05C *1/06, 9/02*
U.S. Cl. 292—36 **5 Claims**



1. An assembly of dead-bolt-type locking means, comprising:

a plurality of dead-bolt-type locking devices;

each of said devices having

(a) a cylindrical element;

(b) a bolt slidably disposed within said element for axial translation relative to said element;

(c) a sleeve, having a camming surface, in envelopment of said element;

(d) an actuator in envelopment of said sleeve; and

(e) means engaged with said bolt, in penetration of said element, and cammingly engaged with said camming surface, for causing translation of said bolt in response to rotation of said sleeve; wherein

said actuator and said sleeve have means mutually cooperative to cause rotation of said sleeve in response to rotation of said actuator; further including

means coupled to said actuators of said devices for causing coincident rotation of each actuator pursuant to rotation of any one thereof; wherein

said actuators of said devices each have a crank arm extending therefrom;

said coupled means comprises a rod coupled at the ends thereof to ends of said crank arms;

said rod is pivotably coupled to said ends of said crank arms; and

said crank arms slue through arcs of a given radius; and further including a hasp coupled to said rod intermediate the length thereof;

said hasp including a pivoted and slotted strap, and an apertured lug for penetration of said slotted strap; wherein

said strap slues through an arc of said given radius; and

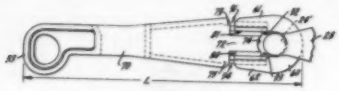
a radially outermost portion of said strap is pivotably coupled to said rod.

4,423,896

REPLACEMENT HASP, KIT, AND METHOD FOR REPLACING RAILROAD CAR LOCK HASPS

Russell M. Loomis, Palos Heights, Ill., assignor to Unarco Industries, Inc., Chicago, Ill.

Filed Mar. 6, 1981, Ser. No. 241,234
Int. Cl.³ E05C *19/08*
U.S. Cl. 292—284 **9 Claims**



1. A kit for making a replacement hasp for a damaged or inoperable hasp on a railroad car door assembly of the type which is locked by a lock mechanism which employs a movable hasp secured to said railroad car by a link which passes through an eye formed on the hasp, which link is permanently attached at both its ends to the car side, comprising:

a partial-eye-defining member which is sized and shaped to fit loosely about the link and extend therefrom, said partial-eye-defining member being generally U-shaped with two approximately parallel arms defining an opening; and

an eye-completion member sized and shaped to cooperate with said partial-eye-defining member to complete the eye when affixed thereto and to form a complete replacement movable hasp when mounted to the link, said eye-completion member having two approximately parallel surfaces to mate with said approximately parallel arms of said partial-eye-defining member and be welded thereto to form shear welds,

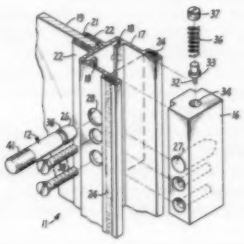
whereby a new replacement hasp may be formed in place of an original hasp by positioning the partial-eye-defining member about the link, mating the eye-completion member therewith and affixing said members together at least primarily by means of shear welds, all without severing the link or modifying in any way the attachment of both ends of said link to the car side.

4,423,897

WINDOW VENTILATING STOP

D. Emerton Williams, 1410 Edith St., Berkeley, Calif. 94703

Continuation of Ser. No. 950,080, Oct. 10, 1978, abandoned. This application Sep. 15, 1980, Ser. No. 186,896
Int. Cl.³ E05C *17/54*
U.S. Cl. 292—288 **3 Claims**



1. In a closure for a building opening having overlapping metal framed glass closure panels formed with outwardly projecting parallel spaced flanges slidable in metal channels affixed to the building, a stop device for selectively restricting how far said panels can be overlapped and hence the amount of opening while permitting such opening to the desired position, comprising

an elongated keeper block mounted between said parallel spaced flanges in reinforcing contact therewith,

means for securing said keeper block in place between said parallel spaced flanges, and

an elongated stop member,

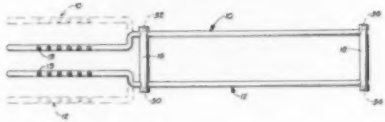
said keeper block and the one of said flanges adjacent to the other closure panel being formed with a bore receiving said stop member with said stop member projecting therefrom in position to intercept the end of said other closure panel and halt further relative opening movement between said panels.

4,423,898

FIREWOOD CARRIER

Herman Spor, Rte. 1, Box 284, Lexington, Okla. 73051

Filed Mar. 31, 1982, Ser. No. 363,955
Int. Cl.³ A47J *49/00*
U.S. Cl. 294—9 **3 Claims**



1. A firewood carrier comprising:

a pair of spaced handle bars each defining a pair of transverse rod bores spaced inwardly from opposite ends thereof;

a pair of elongated rigid rods of circular cross-section and each having an angulation forming a step intermediate its ends, and said rods having portions extending parallel to each other and passing through the transverse rod bores in said handle bars; and

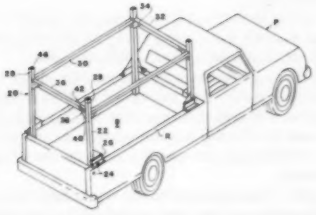
fastening means projecting into said handle bars and into fastening contact with said rods at the locations where the rods pass through the transverse bores in said handle bars.

4,423,899

SYSTEM FOR EXTENDING THE CAPACITY OF A PICK-UP TRUCK AND THE LIKE

David L. Langmead, 615 Winans Way, Baltimore, Md. 21229

Filed Jul. 10, 1981, Ser. No. 282,040
Int. Cl.³ B60P *3/00*
U.S. Cl. 296—3 **10 Claims**



1. A system for extending the capacity of a pickup truck and the like having an open bed with upright sides for carrying particular loads at levels including a level above the cab of a said pick-up truck comprising: a basic frame for affixing inside a said open bed, means fixing the basic frame to a said open bed, load-supporting means proportioned for use with the basic frame for supporting loads specific to certain trades in spaced relation with a said open bed, quick-attachment means for detachably affixing said load supporting means to said basic frame, the basic frame including four posts, each said post having tubular shape and length for extending upright from

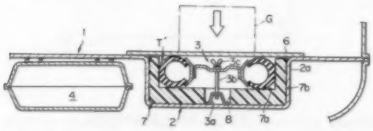
position at a respective corner of a said open bed to a point higher than a said cab of a pick-up truck, means for holding each post upright in said position, the load supporting means having a plurality of vertical sleeves, the quick-attachment means including a plurality of pins proportioned for extending downwardly through respective of said sleeves into said posts, means for limiting travel of said pins in said sleeves and posts, all said pins, sleeves and posts having substantially square cross-section, the means limiting travel including a cap on each pin, each cap having a tie-down ring thereon, and all said pins, sleeves and posts being in vertical alignment when the pins are in said sleeves and posts.

4,423,900

TIRE-STORAGE ARRANGEMENT OF AUTOMOTIVE VEHICLE

Yoji Sugimoto, and Hirotaka Tomioka, both of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Apr. 12, 1982, Ser. No. 367,629
Claims priority, application Japan, Apr. 15, 1981, 56-55478
Int. Cl.³ B62D *43/10*
U.S. Cl. 296—37.14 **9 Claims**



1. A spare-tire storage arrangement of an automotive vehicle having a vehicle body including a floor panel structure having a substantially horizontal upper face, comprising

a tire-storage pan portion forming part of the floor panel structure and downwardly sunk from the horizontal upper face of the floor panel structure, the tire-storage pan portion having a bottom wall and a side wall and being formed with a concavity which is open upwardly and which is surrounded by the side wall, the tire-storage pan portion is being internally sized to be suitable for having a regular-sized spare tire snugly received on the inner surface of said side wall at least at a plurality of points of the outer perimeter of the tread portion of the tire;

a receptacle member externally sized to fit the inner surface of the side wall of the tire-storage pan portion, the receptacle member having an upper face located above the upper face of the bottom wall of the tire-storage pan portion at a level substantially equal to the difference between the depth of the concavity in the tire-storage pan portion and the width of a temporary-use spare tire; and

clamping means for having a temporary-use spare tire securely yet detachably attached to the upper face of the receptacle member.

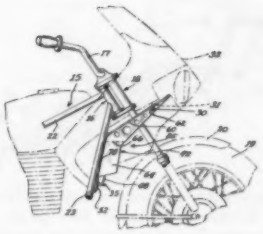
4,423,901

MOUNTING HARDWARE FOR A MOTORCYCLE FAIRING

Thomas D. Shumard, Santa Margarita; Peter B. Evans, San Luis Obispo, and Charles M. Perethian, Arroyo Grande, all of Calif., assignors to First Champaign Corporation, Rantoul, Ill.

Continuation of Ser. No. 118,528, Feb. 4, 1980, abandoned. This application Sep. 24, 1981, Ser. No. 305,322
Int. Cl.³ B62J *17/00*
U.S. Cl. 296—78.1 **9 Claims**

1. In an apparatus for mounting a fairing on the frame of a motorcycle, said frame having at least one tube extending downwardly and rearwardly from the fork head of said frame and the fairing having a pair of laterally spaced, longitudinally extending, downwardly facing mounting surfaces, the mounting apparatus including a pair of vertically spaced, transversely extending cross members which mate with and are secured to said one frame tube, and a pair of plates secured to and extending forwardly from the ends of said cross members, said plates having laterally spaced, longitudinally extending upwardly facing fairing supporting surfaces to receive the mounting surfaces of the fairing, the imrovement wherein:



the lower of said cross members has a central portion which mates with the one frame tube and which is lower than the end portions thereof, the vertical spacing between the portions of the cross members which mate with the one frame tube being sufficient to provide stability and the height of said plates required to accommodate the ends of said cross members being minimized.

4,423,902

ROOF STRUCTURE FOR AN AUTOMOTIVE VEHICLE

Kouichi Yaotani, Akigawa, and Masao Tashoh, Kamakura, both of Japan, assignors to Nissan Motor Company, Ltd., Kanagawa, Japan

Filed Nov. 5, 1981, Ser. No. 318,346
Claims priority, application Japan, Nov. 10, 1980, 55-160565[U]
Int. Cl.³ B60J *7/06*
U.S. Cl. 296—214 **8 Claims**

1. A roof structure for an automotive vehicle having a head lining and comprising:

a plurality of support members transversely disposed with respect to said head lining;

a pair of roof rails having a plurality of holes into which the support members are inserted at their ends so that the head lining is supported thereby;

the support members being made of a hollow tube;

the support members having small through-holes near their ends; and

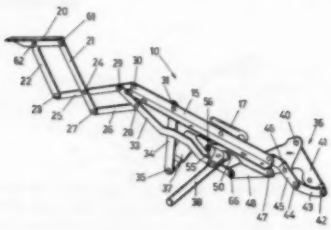
a plurality of stop members each being separate from the support members, said stop member having a portion which is inserted into one of the through-holes of the support members and a stop portion projecting away from said support members for engaging the roof rails for limiting movement of the ends of said support members.

4,423,903

HANDLE OPERATED INCLINER CHAIR

William V. Gerth, 451 Phillip St., Waterloo, Ontario, Canada

Filed Apr. 30, 1981, Ser. No. 258,892
Int. Cl.³ A47C 1/02
U.S. Cl. 297—89 5 Claims



1. A mechanism, connected to base plates fixed to a chair frame, for actuating the seat, back, and footrest of a chair between; (a) the substantially normal position of the said seat and back and a retracted position of the footrest and; (b) a partially and relatively inclined position of the said seat and back and extended portion of the said footrest, comprising the combination with hand operated rotary elements on one side of said chair actuated by the occupant, of a pair of seat-supporting bars, said footrest comprising a concatenated tong assembly having forward ends thereto pivotably connected to a footrest plate, footrest control lever bars pivotably connected at forward ends thereof to said tong assembly; crank arms connected to said rotary element; rearwardly extending primary links, toggle plates pivotably connected to said base plates rearwardly of the rotary axis of said element; said primary links being pivotably connected at their rear ends to said toggle plates, said control bars being pivotably connected at rear ends thereof to said toggle plates; a back controlling assembly including (a) back controlling levers pivotably connected between their ends to said toggle plates, the forward ends of said levers being pivotably connected to said seatsupporting bars and (b) swing-links pivotably connected at both their forward and rear ends to the rear ends of said levers and said base plates respectively whereby said back is caused upon actuation of said mechanism to move through an arcuate path in which it is limited to downward movement only forwardly from its normal or upright position; and secondary link levers pivotably connected to the sides of said chair and said seat-supporting bars for controlling said bars.

4,423,904

SEAT POSITION CONTROL MECHANISM

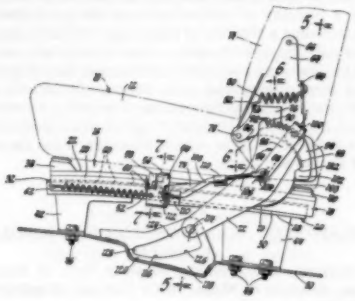
Ray V. Crawford, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 13, 1981, Ser. No. 282,528
Int. Cl.³ B60N 1/02; A47C 1/02
U.S. Cl. 297—341 4 Claims

1. In a vehicle seat including a seat back movable from an upright position rearwardly to a plurality of inclined positions or forwardly to a tilted position, means for mounting the seat on a vehicle for movement to a plurality of adjusted positions and from any adjusted position to an easy enter position, a seat position control mechanism comprising,

actuating means operable by tilting movement of the seat back to displacement the seat from any one of the adjusted positions to the easy enter position,

means blocking operative connection of the actuating means to the seat back when the seat back is in the upright position and in any of the inclined positions,



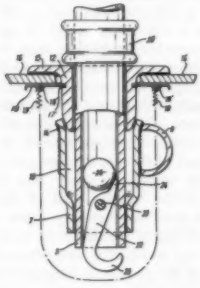
and means operated by forward movement of the seat back toward tilted position for operatively connecting the seat back to the actuating means.

4,423,905

LATCH MECHANISM

George A. Ray, Crewe, England, assignor to Rolls-Royce Motors Limited, Crewe, England

Filed Feb. 12, 1981, Ser. No. 235,159
Claims priority, application United Kingdom, Feb. 16, 1980, 8005297
Int. Cl.³ A47C 7/38
U.S. Cl. 297—391 12 Claims



1. A latch mechanism for connecting two members together, said latch mechanism comprising:

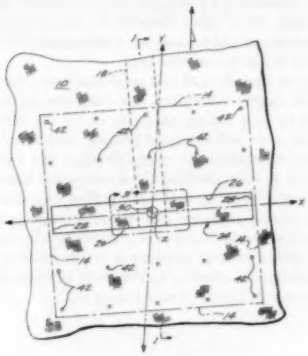
a latch pivotally mounted on one of said two members for movement between a first position in which said two members can be moved relative to one another in a given direction, and a second position in which relative movement between said two members is restrained; and

holding means free of and movable relative to said two members and said latch, said holding means being subjected by gravity to engage and hold said latch in said first position, and said holding means being free to move away from engagement with said latch to allow pivotal movement of said latch to said second position when said two members are simultaneously subjected to an involuntary external force resulting in a component of force tending to separate said two members.

4,423,906
METHOD OF FORMING AN IN SITU OIL SHALE RETORT

Irving G. Studebaker, Grand Junction, Colo., assignor to Occidental Oil Shale, Inc., Grand Junction, Colo.

Filed Sep. 29, 1977, Ser. No. 837,521
Int. Cl.³ E21C 41/10
U.S. Cl. 299—2 22 Claims



1. A method for recovering liquid and gaseous products from an in situ oil shale retort in a subterranean formation containing oil shale and having a substantially vertically extending first cleavage plane set and a substantially vertically extending second cleavage plane set intersecting the first cleavage plane set, comprising the steps of:

determining the angular dispersion of cleavage planes within the first cleavage plane set and within the second cleavage plane set;

excavating a vertically extending slot in the formation having relatively longer side walls and relatively shorter end walls of unfragmented formation, the longer side walls being substantially aligned with the cleavage plane set having the lower dispersion, leaving a remaining portion of unfragmented formation within boundaries of the in situ retort being formed;

explosively expanding at least a part of the remaining portion of the formation toward the slot to form a fragmented permeable mass of formation particles containing oil shale within the in situ retort; and

retorting such a fragmented mass to form such liquid and gaseous products.

4,423,907
IN SITU RECOVERY OF SHALE OIL

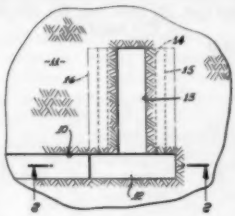
Richard D. Ridley, Bakersfield, Calif., assignor to Occidental Oil Shale, Inc., Grand Junction, Colo.

Continuation-in-part of Ser. No. 563,607, Mar. 31, 1975, abandoned. This application Sep. 19, 1977, Ser. No. 834,464
Int. Cl.³ E21C 41/10
U.S. Cl. 299—2 20 Claims

1. A method of forming, in a subterranean formation containing oil shale, an in situ oil shale retort having side walls of formation aligned with substantially vertically inclined subterranean formation cleavage planes, and containing a fragmented permeable mass of formation particles containing oil shale, which comprises the steps of:

excavating at least one void in the subterranean formation containing oil shale and leaving a remaining portion of unfragmented formation within the side boundaries of the in situ retort being formed;

placing explosive in the oil shale in at least one row of blasting holes parallel to such a substantially vertical formation cleavage plane for preferentially fracturing said formation along the substantially vertical formation cleavage planes and expanding said remaining formation toward such a void; and

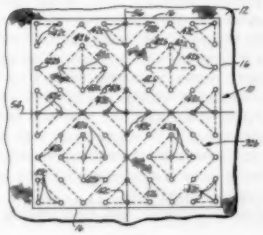


detonating explosive for fracturing at least a portion of the formation along said substantially vertical formation cleavage planes and expanding said remaining formation toward such a void for fragmenting said remaining formation.

4,423,908
FORMATION OF AN IN SITU OIL SHALE RETORT WITH CONTROL OF MOUNDING

Thomas E. Ricketts, Grand Junction, Colo., assignor to Occidental Oil Shale, Inc., Grand Junction, Colo.

Filed Jun. 26, 1981, Ser. No. 277,852
Int. Cl.³ E21C 00/00
U.S. Cl. 299—2 50 Claims



1. A method for explosively expanding unfragmented formation toward a limited void in a subterranean formation comprising the steps of:

(a) excavating a limited void in a subterranean formation while leaving a zone of unfragmented formation adjacent the void, the zone of unfragmented formation comprising a plurality of contiguous regions, wherein each such contiguous region has a free face adjacent the void; and

(b) explosively expanding each such region of the zone of unfragmented formation toward the void in a single round by:

(i) explosively expanding a first portion of each such region toward the void, wherein the free face of each such first portion is near the center of its respective region; and thereafter

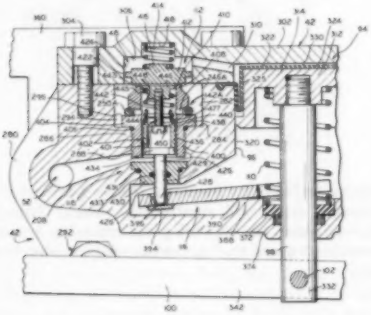
(ii) explosively expanding a second portion of each such region toward the void, wherein the free face of the second portion is adjacent the free face of the first portion and surrounds the free face of the first portion.

4,423,909

EMPTY AND LOAD APPARATUS FOR RAILROAD CARS

William R. Page, 20808-60th St., Bristol, Wis. 53104, and James G. Rees, 1212 Lake Shore Dr., Chicago, Ill. 60610

Filed Oct. 30, 1981, Ser. No. 316,844
Int. Cl.³ B60T 8/20
U.S. Cl. 303—23 R 18 Claims



8. In empty and load air brake control apparatus for use in railroad cars of the type having a sprung car body portion resiliently supported in sprung relation to an unsprung portion of the car and including a brake pipe normally charged with braking air under pressure, a reservoir normally air charged to the pressure of the air in the brake pipe, a brake cylinder for effecting a braking application, an air pressure responsive brake application control valve operative in response to pressure decreases in the brake pipe to control the supply of braking air under pressure from said reservoir to said brake cylinder through air conduit means for causing a brake stroke application and including a retainer device for venting the braking air that effects the braking stroke to atmosphere through the air conduit means, on completion of the brake application in response to pressure increases in the brake pipe, with the air conduit means including a change over valve for changing the pressure of the supply of the braking air to the brake cylinder between that appropriate for load conditions and that appropriate for empty condition, a stop carried by the unsprung portion of the car, and a load sensing device carried by the car body sprung portion adjacent the stop and including a load sensing member movable for engagement with the stop on the brake stroke application for controlling the pressure changing of the modulating valve in accordance with the car body being under empty or load conditions,

the improvement wherein said load sensing device comprises:

a casing including piston means for actuating said load sensing member, with said casing defining a first chamber in open communication with one side of said piston means,

pipe means for communicating the braking air to said casing first chamber for moving said piston means to shift said load sensing member toward its extended relation,

means for biasing said load sensing member to its retracted relation that yields when the pressure of the braking air in said casing first chamber is on the order of fifteen psi,

said casing defining a second chamber spaced and isolated from said piston means,

second pipe means for communicating said casing second chamber with the change over valve,

a check valve assembly interposed between said casing chambers and including means for biasing same in closed relation for maintaining said casing first chamber sealed off from said casing second chamber on operation of said apparatus when the car body is under load conditions,

and linkage means actuated by said piston means for opening said check valve assembly to communicate said casing second chamber to said casing first chamber when the car body is under empty conditions,

said linkage means comprising a fulcrumed lever device having one end of same in lost motion relation to said piston means for fulcruming actuation thereby when said load sensing member has moved to its extended relation for biasing said check valve assembly to open relation,

said check valve assembly biasing means having a biasing action opposing the biasing action of said lever device that holds said check valve assembly in closed relation when the pressure of said braking air in said casing first chamber is above about twenty-one psi,

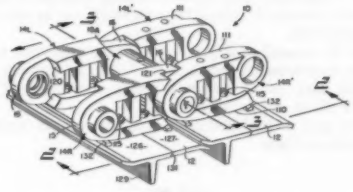
whereby, on operation of said apparatus when the car body is under empty conditions, the load sensing member is shifted by said casing piston to move the load sensing member to its said extended relation, said lever device is actuated by said piston means to place said check valve assembly in its open relation, whereby the braking air is communicated from said casing first chamber to said casing second chamber and thence through said second pipe means to said change over valve whereby the braking air at partial braking pressure is communicated through said casing first chamber to the brake cylinder for empty load brake operation of said apparatus.

4,423,910

REVERSIBLE TRACK LINK ASSEMBLY AND TRACK SHOES THEREFOR

Rajendra K. Narang, 1525 Bonnie Rd., Macedonia, Ohio 44056

Division of Ser. No. 905,209, May 12, 1978, Pat. No. 4,324,437.
This application Feb. 25, 1982, Ser. No. 352,093
Int. Cl.³ B62D 55/28
U.S. Cl. 305—54 6 Claims



1. An endless track for crawler type vehicles or the like comprising a plurality of transversely spaced pairs of track links having first and second rail surfaces on the longitudinal edges thereof, pivot assemblies articulately interconnecting respective link pairs into endless configuration, and track shoes respectively secured to and extending between the correspondingly positioned first or second rail surfaces of each link pair, said track links being symmetrical above and below a horizontal plane through the center thereof to permit said track links and pivot assemblies after sufficient wear to be inverted and said track shoes to be secured to the other corresponding rail surfaces, thereby substantially to increase the use life of said track links and pivot assemblies, and said first and second rail surfaces being radially outwardly bowed relative to said track links to progressively uniformly increase in height from the opposite ends of each said rail surface to the middle thereof, thereby to provide additional rail surface material for wearing at a middle portion thereof.

4,423,911

ROLLING BEARING FOR LENGTHWISE MOVEMENT

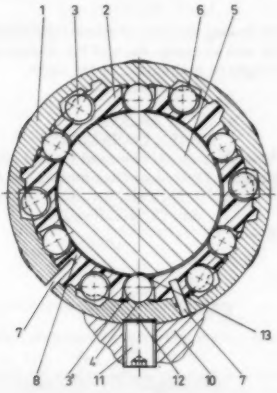
Armin Olschewski, Schweinfurt; Manfred Brandenstein, Eussenheim; Lothar Walter, Schweinfurt; Horst M. Ernst, Eltingshausen, and Walter Reith, Bad Bocklet, all of Fed. Rep. of Germany, assignors to SKF Kugellagerfabriken GmbH, Schweinfurt, Fed. Rep. of Germany

Filed Nov. 2, 1981, Ser. No. 317,502

Claims priority, application Fed. Rep. of Germany, Nov. 7, 1980, 8029743[U]

Int. Cl.³ F16C *29/06*

U.S. Cl. 308—6 C **5 Claims**



1. In a rolling bearing for lengthwise movement with respect to a shaft, wherein the bearing is comprised of an outer sleeve with axially extending races in its bore, a plurality of endless rows of rolling bodies in said bore, and a cage in said sleeve for guiding said rolling bodies to roll in said races in a plurality of circumferential distributed endless rows of which first portions are loaded rolling body portions, said sleeve having an axially extending slit, and wherein a rolling body row adjacent said slit is adapted to engage an axially extending race formed in said shaft for transmission of torque between said shaft and bearing, the improvement wherein said slit extends axially and radially completely through said outer sleeve, said cage having connecting means aligned with said slit that permits radial displacement of the cage adjacent said slit while holding said cage together, the first portion of a row of rolling bodies immediately adjacent said slit being radially moveable to entirely engage said axially extending race formed in said shaft, whereby the rolling bodies of the entire respective first portion of said rolling bodies row adjacent said slit transmit torque between said shaft and bearing, said connecting means of said cage comprising a bendable interconnecting web aligned with said slit.

4,423,912

ARRANGEMENT FOR MOUNTING A CONVERTIBLE BED SEWING MACHINE IN A FLAT BED CABINET

Louis F. Daman, Warren Township, Somerset County; Albert L. Newman, West Orange, and John Patricia, Elizabeth, all of N.J., assignors to The Siner Company, Stamford, Conn.

Filed May 13, 1982, Ser. No. 377,722

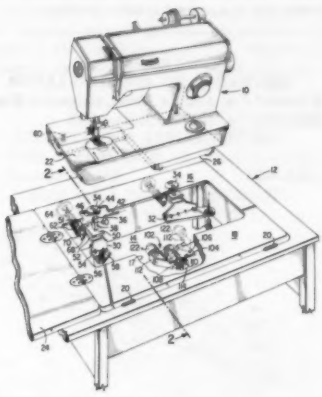
Int. Cl.³ A47F *5/08*

U.S. Cl. 312—30 **4 Claims**

1. In a sewing machine cabinet of the type having a cavity for storing a sewing machine when not in use, a fixed work supporting surface, and a hinged flap having another work supporting surface, said hinged flap being adapted to be upwardly pivoted from a position where said hinged flap work supporting surface is substantially coplanar with said fixed work supporting surface so as to allow a sewing machine to be pivoted between a stored position within said cavity and an operative position with its bed substantially coplanar with said fixed work supporting surface, an arrangement for supporting said sewing machine from the base thereof a substantial distance below the sewing machine bed comprising:

a support bracket assembly mounted on said cabinet and extending into said cavity, said support bracket assembly including means for fixedly mounting said sewing machine base thereon and pivot means for defining the pivoting motion of said sewing machine between said stored and operative positions; and

a support arm assembly mounted on said hinged flap, said



support arm assembly including a support arm adapted to be extended to a first position so as to support said sewing machine base when said hinged flap work supporting surface is substantially coplanar with said fixed work supporting surface and said sewing machine is in its operative position, said support arm assembly further including means for automatically retracting said support arm to a second position when said sewing machine is moved from its operative position so as to provide clearance for said sewing machine when said sewing machine is in its stored position and said hinged flap work supporting surface is substantially coplanar with said fixed work supporting surface.

4,423,913

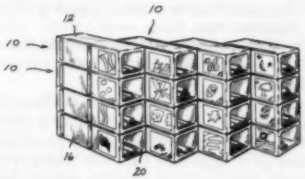
DISPLAY AND STORAGE ASSEMBLY UTILIZING A PLURALITY OF INTERCHANGEABLE STACKABLE BINS

William J. Lee, 19290 Orchard Heights, South Bend, Ind. 46614

Filed Nov. 3, 1981, Ser. No. 317,923

Int. Cl.³ A47B *87/00*; F16B *12/00*

U.S. Cl. 312—107 **4 Claims**



1. A display and storage assembly comprising a plurality of interlocking stackable bins; each bin having a top, bottom and

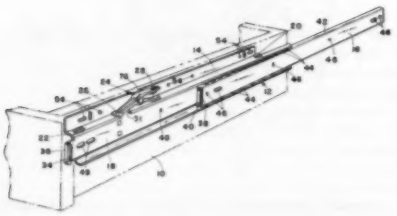
opposite first and second sides extending between ends of the bin to define a storage compartment therein; said first side of each bin having three longitudinally spaced vertically oriented fasteners protruding from the exterior of the side; said second side of each bin having two longitudinally spaced vertically oriented fasteners protruding from the exterior of the side; said second side two fasteners of one said bin being interlockable with one of two pairs of said first side three fasteners of another bin with said one bin second side and said another bin first side being juxtaposed in a first relative position; said second side two fasteners of said one bin being interlockable with a second of said two pairs of said first side three fasteners of said another bin sith said one bin second side and said another bin first side being juxtaposed in a second relative position.

4,423,914

DRAWER SLIDE LOCKING LEVER

Robert J. Vander Ley, Jenison, Mich., assignor to Knape & Vogt Manufacturing Co., Grand Rapids, Mich.

Filed May 18, 1981, Ser. No. 264,273
Int. Cl.³ A47B *88/16*
U.S. Cl. 312—333 **8 Claims**



5. A drawer mounting strip and locking lever combination comprising:

an elongated drawer mounting strip having a vertical element for attachment to a drawer, and a lateral element;

a one-piece locking lever having a pair of generally opposite ends and pivotal mount means between said ends for pivotally mounting said lever to said vertical element;

an integral locking element at one of said ends releasably engaging said lateral element upon pivotal movement of said lever;

an integral deformable spring at the other of said ends in resilient engagement with said lateral element and having an inherent bias to serve as a spring for shifting said locking element toward engagement with said lateral element; and

an integral actuator portion at said other end to allow manual pivoting of said lever for deformation of said spring against its inherent bias to release said locking element.

4,423,915

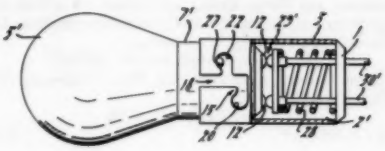
LAMP SOCKET

Robert C. Brownlee, Fenton, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed Feb. 22, 1982, Ser. No. 350,704
Int. Cl.³ H01R *33/48*
U.S. Cl. 339—32 R **3 Claims**

1. A lamp socket assembly capable of receiving either single or multicontact light bulbs having either a pair of axially aligned or a pair of axially offset radially projecting retention pins located on a light bulb base, the assembly including a socket having electrical contact means therein, and yieldable support means to support a light bulb and to urge the retention pins against the said socket comprising:

A cylindrical sleeve, open at one end to accept a light bulb base inserted therein having end stops means at the other end of said sleeve to engage said yieldable support means,



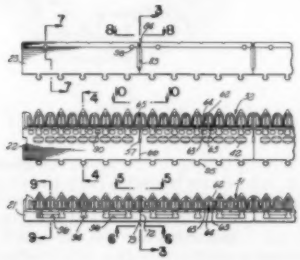
said sleeve having two sets of diametrically disposed J-slots, separate sets to accept each of the retention pin pairs of either single or multicontact light bulbs.

4,423,916

CABLE CONNECTOR

Almon A. Muehlhausen, II, Thousand Oaks, Calif., assignor to Communications Technology Corporation, Los Angeles, Calif.

Filed Jul. 13, 1981, Ser. No. 282,656
Int. Cl.³ H01R *4/24*
U.S. Cl. 339—59 M **8 Claims**



1. In a multipiece connector for making electrical connections between first and second electrical cables, each cable having a plurality of insulated wires therein,

the connector including an index strip, a connector module strip and a module cap strip, with the index strip having a plurality of first wire receiving slots in a row for laying in wires of the first cable, with the connector module strip having a plurality of second wire receiving slots in a row for laying in wires of the second cable and double ended slotted contact elements, and with the module cap strip having a plurality of wire confining means aligned with the second slots,

with the connector module strip snap mounting to the index strip and the slotted contact elements penetrating the wire insulation making electrical contact with the wires of the first cable, and with the module cap strip snap mounting to the connector module strip and the other ends of the slotted contact elements penetrating the wire insulation making electrical contact with the wires of the second cable, and

with said connector module strip having a top member and a bottom member joined together with said contact elements therebetween, said top member including a plurality of pins for entering corresponding openings in said bottom member, with said contact elements having notches for positioning between said pins,

the improvement wherein each of said strips includes reduced structural sections at predetermined locations defining means for separating the strips into a plurality of shorter pieces, with said connector module strip pins at said predetermined locations divided into two portions

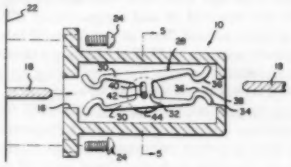
with a slot therebetween, and with said bottom member at said predetermined locations having spaced walls with a slot therebetween, with said spaced walls entering said pin slots.

4,423,917

ELECTRICAL CONNECTOR HAVING MOVABLE CONTACT UNITS

William S. Scheingold, Palmyra, and Wilmer L. Sheesley, Dauphin, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 19, 1981, Ser. No. 323,000
Int. Cl.³ H01R *25/02*
U.S. Cl. 339—64 M **4 Claims**



1. An electrical connector for receiving tab terminals, comprising:

a. a housing of insulative material with a passage therethrough and a pin mounted in the housing and extending across the passage; and

b. a conductive contact unit consisting of two, elongated, spaced apart, parallel elements with the adjacent free ends defining a tab terminal-receiving receptacle, said elements being joined intermediate the free ends by a center section extending therebetween, said section having an elongated slot extending therethrough normal to the axis of the unit, said unit being mounted on the pin with the pin passing through the slot so that the unit may both pivot about and move up and down the pin.

4,423,918

RE-ENTERABLE SERVICE WIRE SPLICE CLOSURE

Manuel Filreis, Edina, and William J. Seim, Roseville, both of Minn., assignors to Minnesota Mining & Manufacturing Company, St. Paul, Minn.

Filed Aug. 18, 1981, Ser. No. 293,862
Int. Cl.³ H01R *4/22*
U.S. Cl. 339—97 P **14 Claims**

1. A re-enterable moisture-resistant closure for conductor splices between preconnected wires of a cable, said closure comprising

a shallow cup having a bottom wall and a cylindrical side wall formed with threads adjacent the open end of the cup and said side wall having a plurality of wire-receiving slots extending from the open end of the cup toward the bottom wall,

a sealant substantially filling said cup,

a tray having a size to receive the conductor splices and having a size to fit within said cup, said tray having side walls having a plurality of wire-receiving slots therein extending from the free edge of said side walls for alignment with the slots in said cup, said tray receiving said spliced wires being inverted into said cup, and

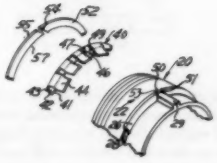
a cover adapted to matingly and threadably engage the threads on said cup to urge said tray, when inverted, into said cup to encapsulate a splice within said cup.

4,423,919

ELECTRICAL CONNECTOR

Frank M. Hillis, Franklin, N.Y., assignor to The Bendix Corporation, Southfield, Mich.

Filed Apr. 5, 1982, Ser. No. 365,708
Int. Cl.³ H01R *13/648*
U.S. Cl. 339—143 R **7 Claims**



3. An electrical connector (**20**) of the type including a cylindrical shell (**22**) having a radial flange portion (**26**) and a longitudinal key portion (**29**) extending therefrom, a dielectric insert (**23**) mounted in the shell, an electrical contact (**24**) supported in the insert for mating and a shield ring (**40**) formed of resilient metal for shielding the contact from EMI RFI and including a flat annular band (**42**) having convexly curved fingers (**44**) extending transversely from the outer rim (**43**) of the band, and means for mounting the shield ring to the shell, said mounting means being solderless and characterized by:

a locking keyway (**50**) disposed on the flange portion;

means (**52**) for retaining the shield ring on the shell and for positioning the annular band against the flange portion, said shield ring being sized to fit over the shell; and

detent means (**46**) cooperative with said keyway for preventing said shield ring from rotating relative to said flange portion.

4,423,920

ELECTRICAL CONNECTING DEVICE

Dale E. Cooper; Ronald E. Grillot; Gary K. Quick, and Kevin R. Smith, all of Johnson County, Kans., assignors to King Radio Corporation, Olathe, Kans.

Continuation of Ser. No. 180,657, Aug. 25, 1980, abandoned. This application Nov. 23, 1982, Ser. No. 443,944
Int. Cl.³ H01R *23/68*
U.S. Cl. 339—252 R **3 Claims**

1. A device for providing electrical and physically supporting connection between a connector having a socket and a substrate assembly including first and second insulating substrate panels having opposed electrically conductive portions spaced apart from one another within a recess formed between free edge portions of the substrate panels, said device comprising:

a stem portion having a contact body adapted for insertion

into the socket of the connector to make electrical contact therewith, said stem portion having a seating surface engaging the connector when said contact body is inserted into the socket;

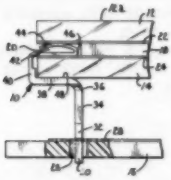
a generally flat base plate connected with said stem portion;

a bridge portion extending from said base plate and having a length to span the free edge portion of the first substrate panel;

a first plate like contact element extending from said bridge portion in a generally parallel relationship with said base plate and spaced therefrom;

a second plate like contact element forming a spring arm extending from said first contact element;

a curved connecting portion integral with said first and second contact elements and connecting said contact elements in a manner to locate said second contact element in a position substantially folded over said first contact element about said connecting portion, said first and second contact elements being urged apart about said



connecting portion by compression spring action when said contact elements are compressed toward one another;

said first and second contact elements being insertable into said recess in electrical contact with said conductive portions of the respective first and second substrate panels with said bridge portion spanning the free edge portion of the first panel and said base plate and first contact element gripping the first panel therebetween, said contact elements being compressed when inserted into the recess whereby the contact elements are urged apart against said conductive portion of the panels; and

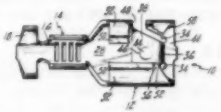
said stem portion, contact body, base plate, bridge portion and contact elements being formed of an electrically conductive material to establish electrical connection between the conductive portions of the panels and between each conductive portion and said connector and to physically support the substrate assembly from the connector when said contact elements are inserted into the recess and said contact body is inserted into the socket.

4,423,921

TAB RECEPTACLE TERMINAL

Thomas E. Hall, Fort Wayne, Ind., assignor to Essex Group, Inc., Fort Wayne, Ind.

Filed May 17, 1982, Ser. No. 378,574
Int. Cl.³ H01R *15/12*
U.S. Cl. 339—256 SP **1 Claim**



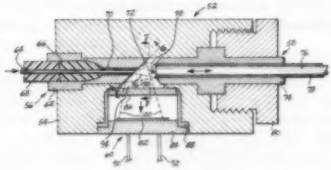
1. An electrical tab receptacle terminal formed from sheet metal and comprising a generally channel-shaped receptacle portion for receiving a substantially flat rectangular tab having a recess or an aperture herein; said receptacle portion consisting of a floor, side walls upstanding from the side edges of said floor, and inturned flanges along the upper edges of said side walls overhanging the side margins of said floor; said floor having a transverse slit therethrough extending across a central major portion of said floor at the forward tab-entry end of said receptacle portion; said floor having two diverging slots therethrough extending from respective opposite ends of said slit and terminating at respective junctions of said side walls with said floor rearward of the forward tab-entry end of said tab receptacle portion; said floor having a deflectable tongue of generally trapezoidal shape defined by said transverse slit and said diverging slots which is arranged and adapted to bias a tab when inserted into said receptacle portion against said flanges; said tongue being bowed upwardly lengthwise to extend from its juncture with said floor and then downwardly toward the floor with the free end of said tongue being offset below the adjacent portion of said floor at the forward tab-entry end of said receptacle portion; said tongue having a centrally disposed detent intermediate its ends for cooperating latching engagement with a recess or an aperture in a tab when inserted into said receptacle portion; each of said side walls being provided with an aperture communicating with a respective one of said diverging slots to permit unhindered resilient deflection of said tongue as its juncture with said floor; each of said side walls having a forward edge inclined upwardly and rearwardly from its respective juncture with said floor at the forward tab-entry end of said receptacle portion; the leading edges of said flanges extending inwardly and rearwardly in spaced converging relation from their respective junctures with said forward edges of said side walls; each of said flanges having a downwardly embossed free end region extending through a major length thereof and terminating short of the respective leading edge thereof to form a lower narrow planar contact surface extending substantially the length of said flange; and each of said flanges having a curved region near the leading edge thereof to facilitate insertion of a tab into the forward tab-entry end of said receptacle portion.

4,423,922

DIRECTIONAL COUPLER FOR OPTICAL COMMUNICATIONS SYSTEM

David R. Porter, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Dec. 18, 1978, Ser. No. 970,730
Int. Cl.³ G02B *5/14*
U.S. Cl. 350—96.15 **19 Claims**



1. A coupler for an optic data system, said coupler comprising:

a source port,

no more than one network port,

a detector port,

directing means in a path between said source port and said network port for receiving an output optical beam from said network port;

said directing means including a passageway for passing an input optical beam from said source port to said network port,

said directing means directing said output optical beam,

except for a portion of said beam entering said passageway, to said detector port; and

expanding means effective in a path between said network port and said directing means for expanding said output beam,

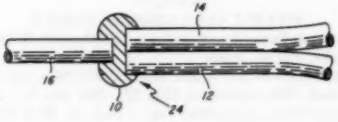
wherein the cross-sectional area of said output beam at said network port is larger than the cross-sectional area of said input beam at said source port.

4,423,923

METHOD AND FIXTURE FOR COUPLING OPTICAL FIBERS

Gary A. Frazier, Plano, and Milo R. Johnson, Richardson, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 5, 1981, Ser. No. 308,345
Int. Cl.³ G02B 7/26
U.S. Cl. 350—96.15 **9 Claims**



1. A fiber optic coupler for coupling two mutually isolated fibers to a union fiber, comprising:

a body of light-transmissive material having first and second indentations formed therein:

wherein said first indentation and said second indentations are opposed on opposite sides of said body, and wherein said first and second indentation comprise respective plane faces parallel to each other;

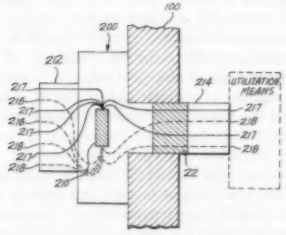
and wherein said first indentation is substantially circular and has a diameter substantially equal to the diameter of said union fiber, and wherein said second indentation has a major dimension equal to the sum of the respective diameters of said mutually isolated fibers.

4,423,924

STAR COUPLER BULKHEAD CONNECTOR

Ralph F. Braun, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Sep. 30, 1981, Ser. No. 307,344
Int. Cl.³ G02B 7/26
U.S. Cl. 350—96.16 **2 Claims**



2. A pressure bulkhead penetrator for transmitting optical data information through a pressure bulkhead, said pressure bulkhead penetrator comprising:

a star coupler having input and output optical fibers coupled to a mixer element; and,

a plurality of said input and output optical fibers disposed through an aperture in said pressure bulkhead between said mixer element and utilization means disposed on a side of said pressure bulkhead remote from said mixer element for transmitting said optical data information through said pressure bulkhead.

4,423,925

GRADED OPTICAL WAVEGUIDES

Franklin W. Dabby, Woodbridge, and Ronald B. Chesler, Cheshire, both of Conn., assignors to Times Fiber Communications, Inc., Wallingford, Conn.

Division of Ser. No. 57,519, Jul. 13, 1979, Pat. No. 4,298,366.
This application Jul. 28, 1981, Ser. No. 287,703
Int. Cl.³ G02B 5/172
U.S. Cl. 350—96.31 **3 Claims**

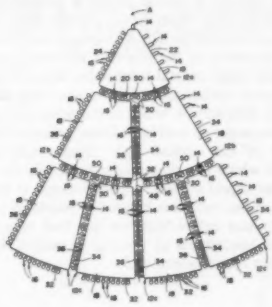
1. An optical waveguide comprising (i) a core comprised of a central area of pure fused silica of constant refractive index and an outer region of borosilicate exhibiting a radially decreasing refractive index and (ii) a cladding of borosilicate of constant refractive index, lower than the refractive indices present in said core, characterized in that said central area of constant refractive index comprises less than 10% of the cross-sectional area of said waveguide.

4,423,926

PARABOLIC COLLECTOR

Roger M. Stolpin, 3136 Quick Rd., Holly, Mich. 48442

Filed Apr. 14, 1982, Ser. No. 368,071
Int. Cl.³ F24J 3/02
U.S. Cl. 350—292 **8 Claims**



1. A parabolic collector comprising: a plurality of molded plastic panels secured to each other to define a dish type parabolic shape having a central axis; each panel having sides including lugs that snap into engagement with the lugs on adjacent panels to provide the securement of the panels to each other; each panel having a collecting surface of a segmental parabolic shape bounded by the sides of the panel; and each set of panels spaced from the central axis a given distance having the identical construction as each other.

4,423,927

OPTICAL, TEMPORAL BANDPASS FILTER

Vincent T. Bly, Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 22, 1981, Ser. No. 304,504
Int. Cl.³ G02F 1/13, 1/133
U.S. Cl. 350—331 R **14 Claims**

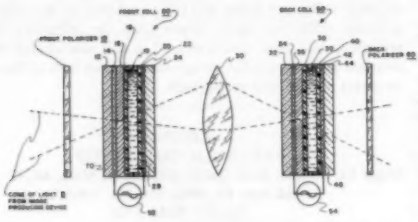
1. An optical, temporal bandpass filter device, said device comprising:

front and back linear polarizers having their directions of polarization orthogonal to each other;

front and back liquid crystal light valves positioned in optical alignment between said front and back polarizers with a relay lens in optical alignment between said front and

back liquid crystal light valves to provide image focus therebetween, said front and back liquid crystal light valves having different times of responses and opposite handedness of rotary direction untwist with matching degrees of untwist relative to the original local light intensity distribution in an optical light image emitted from an optical image producing source;

means for applying different a.c. voltages across said front and back liquid crystal light valves to cause faster time-based modulation of untwist in the liquid crystal cell molecules of one of said front and back liquid crystal light valves, wherein said optical light image is linearly polarized by said front linear polarizer with the linearly polarized optical light image focused on said front liquid crystal light valve in which the plane of polarization of said



linearly polarized optical image is untwisted in a rotary direction by said front liquid crystal light valve in one handedness direction and is simultaneously untwisted in a rotary direction in the opposite handedness direction by said back liquid crystal light valve wherein said plane of polarization varies according to said original local light intensity distribution wherein the untwisted optical light image impinges on said back linear polarizer with only the portion of the optical light image transmitted therethrough which has time response within the passband of the faster liquid crystal cell to become at least partially untwisted and which is above the passband of the slower liquid crystal cell which has not had time to start any opposite handedness of untwist to cancel the untwist in said faster liquid crystal cell.

4,423,928

LIQUID CRYSTAL DISPLAY DEVICE

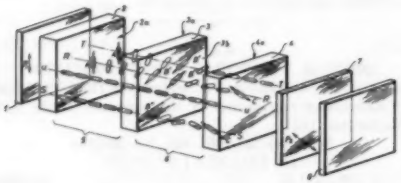
Claude Laesser, La Chaux de Fonds, Switzerland, assignor to Ebauches, S.A., Switzerland

Filed Dec. 3, 1980, Ser. No. 212,353

Claims priority, application Switzerland, Dec. 11, 1979, 10962/79

Int. Cl.³ G02F 1/13

U.S. Cl. 350—335 **2 Claims**



1. A liquid crystal display device comprising, in sequence, a first polarizer, having a first direction of polarization, a first of three transparent insulating plates, a first nematic liquid crystal layer, the second plate, a second nematic liquid crystal layer, the third plate and a second polarizer having a second direction of polarization, said plates and said polarizers being substantially parallel and disposed in a facing relationship to each other, control electrodes disposed on said plates, and means for orienting the molecules of the first liquid crystal layer in contact with the first and the second plate in a first and a second direction of orientation respectively, and the molecules of the second liquid crystal layer in contact with the second and the third plate in a third and a fourth direction of orientation respectively, wherein said first direction of orientation is substantially parallel to said first direction of polarization, said first and second directions of orientation form an angle of substantially 60°, said third direction of orientation is substantially parallel to said second direction of orientation, said third and fourth directions of orientation form an angle of substantially 60°, and said second direction of polarization is substantially parallel to said fourth direction of orientation.

4,423,929

MULTI-LAYER DISPLAY DEVICE

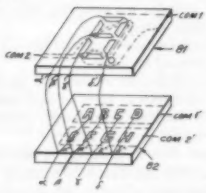
Tsuguo Gomi, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Continuation-in-part of Ser. No. 853,925, Nov. 22, 1977, abandoned. This application May 23, 1980, Ser. No. 152,894

Claims priority, application Japan, Nov. 22, 1976, 51-140359

Int. Cl.³ G02F 1/13

U.S. Cl. 350—335 **17 Claims**



1. A multi-layer liquid crystal display device comprising at least two liquid crystal display cells overlapping in plan view, each said display cell for selectively displaying a display of at least one character with the display in each cell at least in part overlapping along a line of sight, and each cell including two opposed transparent panels in spaced relation formed with segmented pattern transparent electrode means deposited on the interior surface of one of said panels for forming said display and at least one common electrode means on the opposed panel opposite at least a portion of said segmented pattern electrode means and a liquid crystal material in the space between said panels adapted to have regions thereof rendered visually distinguishable from the remainder of said material when a predetermined voltage is selectively applied across the opposed regions of pattern and common electrode means, portions of the segmented pattern electrode means of one of said layers being electrically connected to portions of the segmented pattern electrode means in another of said layers with said connection outside the space between said panels, the common electrode means in each cell formed independently and not electrically connected with each other and multiplexed driving circuit means for generating segment signals for application to said segmented pattern electrode means and common signals for application to each said common electrode means, said segment and common signals for selectively energizing at least a portion of said electrode means for displaying at least one of said characters, and at least one of said common signals being an OFF signal when applied to a common electrode means to prevent the portion of the display associated with said common electrode means from being placed in an ON condition regardless of the segment signal applied to the opposed segmented electrode means.

4,423,930

POLYMERIC CONTACT LENS MATERIALS WITH HIGH OXYGEN PERMEABILITY

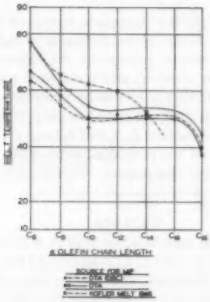
Don N. Gray, Sylvania, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

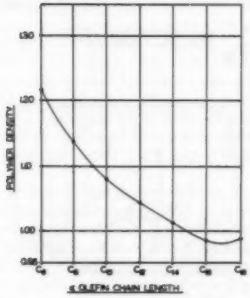
Continuation-in-part of Ser. No. 81,062, Oct. 2, 1979, abandoned, which is a division of Ser. No. 684,683, May 10, 1976, Pat. No. 4,179,757, which is a continuation of Ser. No. 577,533, May 14, 1975, abandoned, which is a division of Ser. No. 328,972, Feb. 2, 1973, Pat. No. 3,928,294, which is a continuation-in-part of Ser. No. 279,877, Aug. 11, 1972, abandoned, which is a continuation-in-part of Ser. No. 228,240, Feb. 22, 1972, abandoned. This application Mar. 23, 1981, Ser. No. 246,238

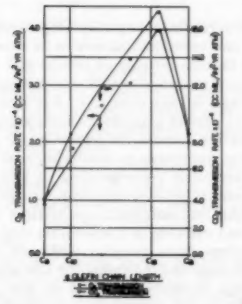
The portion of the term of this patent subsequent to Dec. 23, 1992, has been disclaimed.

Int. Cl.³ G02C *7/04*

U.S. Cl. 351—160 R **5 Claims**







1. As an article of manufacture, a soft contact lens article made of a copolymer having the requisite degree of optical clarity and permeability to CO_2, and a permeability to oxygen at least as great as that of cellulose acetate butyrate, measured

under the same conditions, and that is a biocompatible reaction product of

(1) an alpha-olefin having 6 to 18 carbon atoms and

(2) sulfur dioxide.

4,423,931

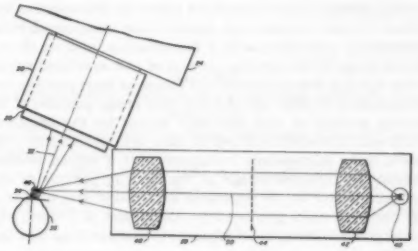
FUNDUS CAMERA ACCESSORY FOR ANALYSIS OF THE OCULAR FUNDUS CONTOUR

Jerrold M. Shapiro, 34 Parker Rd., Framingham, Mass. 01701

Filed Sep. 9, 1980, Ser. No. 185,585

Int. Cl.³ A61B *3/10*

U.S. Cl. 351—206 **17 Claims**



1. In a photogrammetry system of obtaining ocular fundus contour information, the system including a camera for photographing the retina and optic disc of a naked eye along a camera optic axis through the pupil of the eye and a projector for projecting and imaging a plurality of light stripes onto the retina and optic disc of the fundus through the pupil along a projection optic axis spaced from the camera optic axis at the pupil, the projector comprising, along the projector optic axis:

a light source;

a projector lens system spaced from the eye;

a grating positioned at about the rear focal plane of the projector lens system such that the grating is imaged onto the retina and optic disc of the fundus by the optical power of the projector lens system and the eye without a contact lens on the eye;

a mirror for bringing the camera axis and projection axis into a parallel relationship at the eye, the mirror providing a grating image on the retina which spans the optic disc of the eye while permitting return light to pass to the camera to image the grating at the camera; and

an aperture stop near or imaged near the pupil, the stop being sufficiently small to provide a depth of field corresponding to the depth of the optic disc cup and sufficiently near or imaged sufficiently near the eye to provide an

image of the grating on the retina which spans the optic disc.

4,423,932

EYE FUNDUS OBSERVING AND PHOTOGRAPHING OPTICAL SYSTEM

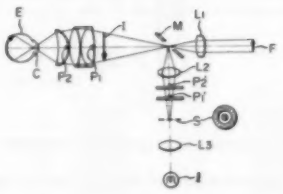
Fumio Takahashi, Yokohama, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed Dec. 8, 1980, Ser. No. 214,043

Claims priority, application Japan, Dec. 25, 1979, 54-167645

Int. Cl.[3] **A61B** *3/14*; **G03B** *29/00*

U.S. Cl. 351—207 **2 Claims**



1. An eye fundus observing and photographing optical system comprising an objective lens including a biconvex main positive lens component and at least one positive lens component provided at that side of said main positive lens component which is adjacent to an eye to be examined, and an illuminating optical system including an apertured mirror disposed obliquely with respect to the optical axis of said objective lens to supply an illuminating light to the fundus of said eye through said objective lens, the reflected image position of the opening portion of said apertured mirror by the eye-side lens surface of said at least one positive lens component being substantially coincident with a first position whereat the reflected image of the opening portion of said apertured mirror by the eye-side lens surface of said biconvex main positive lens component is formed, and the reflected image position of the opening portion of said apertured mirror by the apertured mirror-side lens surface of said at least one positive lens component being substantially coincident with a second position whereat the reflected image of the opening portion of said apertured mirror by the apertured mirror-side lens surface of said biconvex main positive lens component is formed, said second position being more adjacent to said eye than said first position;

said biconvex main positive lens component having in itself a first cemented surface having its convex surface facing said apertured mirror and a second cemented surface having its concave surface facing to said apertured mirror, said second cemented surface being disposed at the apertured mirror side of said first cemented surface, the reflected image position of the opening of said apertured mirror by said first cemented surface being substantially coincident with said second position, and the reflected image position of the opening portion of said apertured mirror by said second cemented surface being substantially coincident with said first position;

wherein when the distance from the vertex of the lens surface of said at least one positive lens component which is most adjacent to said eye to the vertex of the lens surface of said main positive lens component which is adjacent to said eye is d1 and the center thickness of said main positive lens component is d2 and when the vertex of the lens surface of said main positive lens component which is adjacent to said apertured mirror is the origin of the coordinates and the apertured mirror side is the positive direction, the distance P_1 to said first position and the distance P_2 to said second position satisfy the following conditions:

$$-\frac{1}{4}d_2 \leqq P_1 < d_2 \quad \text{(I)}$$

$$-(2d_1+d_2) \leqq P_2 < d_1/4 - d_2; \text{ and} \quad \text{(II)}$$

wherein numerical data are as follows:

FIRST EMBODIMENT

	d0 = 34.55		
r1 = −119.036	d1 = 20.0	n1 = 1.62041	ν1 = 60.3
r2* = −29.510*	d2 = 1.0		
r3 = 75.617	d3 = 18.0	n2 = 1.62041	ν2 = 60.3
r30 = −117.082	d4 = 2.0	n3 = 1.74000	ν3 = 28.2
r31 = 47.507	d5 = 25.0	n4 = 1.69350	ν4 = 53.6
r4 = −179.690	d6 = 131.4		

{ the surface with mark * - nonspherical surface (first surface)
P_1 - vertex position of the last surface r4
P_2 - 53.36 mm from the vertex of the last surface r4

wherein r represents the curvature radius of each lens surface, d' represents the center thickness of and the air space between each lens, n represents the refractive index, ν represents Abbe number, and the added numerals represent the order from the eye to be examined, and wherein d0 represents the distance between the eye to be examined and the first lens surface (r_1), and r_{30} and r_{31} represent the curvature radii of the cemented surfaces in the biconvex main positive lens component.

4,423,933

READER FOR MICROFICHES WITH A DISPLAY FOR IMAGE-FIELD COORDINATES

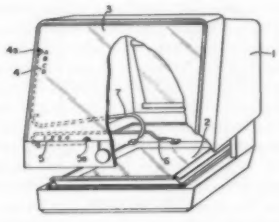
Karl-Günther Behr, Biebertal, and Werner Junker, Lollar, both of Fed. Rep. of Germany, assignors to Minox G.m.b.H., Giessen, Fed. Rep. of Germany

Filed Mar. 24, 1982, Ser. No. 361,201

Claims priority, application Fed. Rep. of Germany, Mar. 30, 1981, 3112610

Int. Cl.[3] **G03B** *23/08*

U.S. Cl. 353—27 R **12 Claims**



1. In a microfilm reader having a film stage having means for displacement in two coordinate directions for moving a microfiche supported thereon through an optical path defined by a projection lamp and an optical system which projects an image of the microimages arranged in rows and columns on the microfiche onto a ground glass screen having a housing via a plurality of reflecting mirrors, the improvement comprising a microfiche reader comprising in combination on said ground glass screen a first scale corresponding to said microimage rows and a second scale corresponding to said microimage columns, a movable first marking in combination with said first scale and a second marking in combination with said second scale, said markings being coupled with said displacement means of the film stage and indicating the row and the column of the microimage presently projected on said ground glass screen, said scales on said ground glass cooperating in each of two coordinate directions with a row of light-emitting diodes defining said first and second markings having one LED oppo-

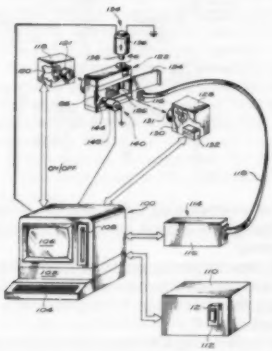
site each said scale marking and individual LED's controlled by the position of said film stage and light up.

4,423,934

PHOTOGRAPHIC CAMERA WITH DIGITAL CONTROLLER AND METHOD OF MANUFACTURE

David N. Lambeth, Webster; James K. Lee, Pittsford, and Lee F. Frank, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 2, 1982, Ser. No. 364,832
Int. Cl.³ G03B *3/10, 7/097*
U.S. Cl. 354—412 **9 Claims**



1. A method of manufacturing a photographic camera of the type having a digital controller and at least one input transducer such as a position sensor, a rangefinder, or a light measurement circuit and at least one controlled electromechanical output transducer such as a shutter, aperture, or focus actuator, said method comprising the steps of:

first making the photographic camera with said digital controller including: (1) a microcomputer, with a memory, adapted to receive inputs from said input transducer and to control said output transducer in response thereto, according to a general control program stored in said memory and including (2) a programable memory for storing control constants to custom tailor said general control program to the particular camera in which it resides;

operating said photographic camera under known operating conditions using a nominal control program;

measuring the response of said output transducer under said known operating conditions and generating said control constants based on said measured responses to bring the operation of said camera into conformity with desired parameters; and

programing the programable memory by means of external programing equipment, with said control constants.

4,423,935

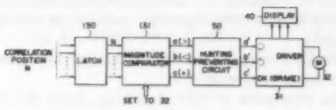
AUTOMATIC FOCUSING DEVICE

Mitsuo Eguchi, Ageo; Yoshimi Kikuchi, Urawa, and Nobuyuki Ichino, Warabi, all of Japan, assignors to Mamiya Koki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 267,445, May 27, 1981, abandoned. This application Jan. 24, 1983, Ser. No. 460,282
Claims priority, application Japan, Nov. 21, 1980, 55-163188
Int. Cl.³ G03B *7/08*
U.S. Cl. 354—402 **1 Claim**

1. In an automatic focusing device comprising:

intensity distribution detecting means for detecting the intensity distribution of the image of an object to be photographed and which is formed by a light beam passing through a lens of a photographing optical system in a photographing device, as a video signal whose level is not affected by the brightness of the object, an accumulation mode image sensor in said intensity distribution detecting means with a charge accumulation time in dependence upon the brightness of the object, a signal processing circuit receptive of the video signal for processing the video signal to determine whether the photographing device is in a focused state, and to determine when the photographing device is in a defocused state and having an output, a drive device in said signal processing circuit for developing a drive direction signal output in response to the output of the signal processing circuit to move the lens in the photographing optical system towards a focusing position, and lens driving means for moving the lens in



a direction determined by the drive-direction signal as long as the direction drive signal is delivered by the signal processing circuit, the improvement comprising:

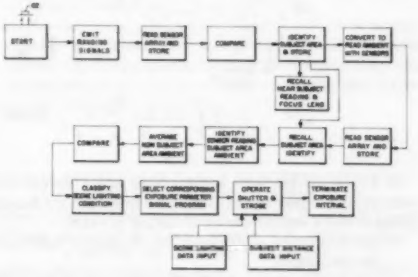
a hunting preventing circuit means for making said drive-direction signal ineffective for a predetermined period of time when said lens reaches a focusing position and which is shorter in time when the object is high in brightness and is longer in time when the object is low in brightness, even if said drive-direction signal is delivered after it has been determined by said signal processing circuit that said photographing device is in a focused state, whereby the lens is maintained stopped during said period of time when it reaches said focusing position thereby preventing hunting.

4,423,936

PHOTOGRAPHIC EXPOSURE CONTROL SYSTEM AND METHOD

Bruce K. Johnson, Andover, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jul. 26, 1982, Ser. No. 402,149
Int. Cl.³ G03B *3/10, 7/093, 15/05*
U.S. Cl. 354—403 **28 Claims**



1. A photographic exposure control system for classifying ambient scene lighting conditions as normal, backlit or forelit and, thereafter, automatically selecting appropriate exposure parameters for the indicated conditions, said system comprising:

means, including a shutter arrangement, responsive to exposure parameter signals for controlling transmission of image forming light from a scene area to a photosensitive recording medium during an exposure interval;

means, operative during a pre-exposure interval, for emitting

ranging signals toward the scene area, separately measuring reflected back portions of the said ranging signals from each of a plurality of selected different scene area portions to determine the distance range of subjects therein, comparing said range measurements, and providing a signal identifying the scene area portion having the nearest subject therein to designate said portion as the subject area;

means, operative during said pre-exposure interval or during an initial portion of the exposure interval, for separately measuring the ambient light intensity in each of the selected different scene area portions and providing corresponding separate light intensity signals for each said portion;

means responsive to said subject area identifying signal and said light intensity signals for comparing the subject area light intensity with the light intensity of non-subject areas and, as a result of the comparison, providing a signal classifying ambient scene lighting conditions as normal, backlit or forelit;

means for storing normal, backlit and forelit exposure parameter signal programs; and

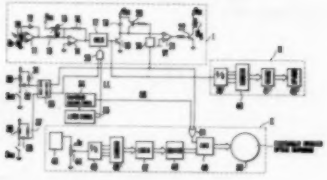
means responsive to said classifying signal for selecting the appropriate one of said programs corresponding to said classifying signal and transmitting said selected program of signals to said means for controlling transmission of image forming scene light to said recording medium.

4,423,937

TTL LIGHT MEASURING SYSTEM

Ryoichi Suzuki, Kawasaki, and Takashi Uchiyama, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 14, 1981, Ser. No. 293,405
Claims priority, application Japan, Aug. 22, 1980, 55-115411
Int. Cl.³ G03B 7/08
U.S. Cl. 354—446 6 Claims



5. For a camera with a diaphragm and a shutter release wherein the shutter release is actuable to a first light measuring position and a second shutter actuating position,

a light measuring arrangement for measuring light through the diaphragm;

signal holding means for holding the measurement of the measure arrangement; and

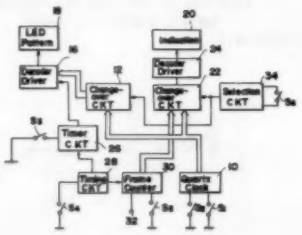
circuit means responsive to the shutter release and connected to said holding means and said diaphragm control circuit for momentarily actuating the diaphragm control circuit and initiating operation of said holding means in response to the shutter release being in the first light measuring position and for reactuating said diaphragm control circuit and reading out the content of said holding means in response to the shutter release being in the second shutter actuating position.

4,423,938

DATA SUPERIMPOSING AND MONITORING DEVICE FOR A CAMERA

Shinji Tominaga, Sakai, Japan, assignor to Minolta Camera Kabushiki Kaisha, Azuchi, Japan

Filed Sep. 4, 1981, Ser. No. 299,530
Claims priority, application Japan, Sep. 19, 1980, 55-134304
Int. Cl.³ G03B 17/24, 17.36
U.S. Cl. 354—106 9 Claims



7. In a camera employing a film strip for taking individual shots of object scenes through an objective lens, the improvement comprising:

means for superimposing predetermined data on the film strip relative to the object scene independent of the objective lens, the data being a composite of a plurality of individual units; E

means for determining a frame count of the film strip;

means for activating the display means to display the film count on at least a portion of the individual units, and

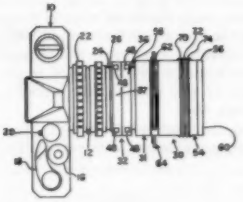
switch means to simultaneously permit the predetermined data to be superimposed on the film while displaying only a portion of that data to the operator plus displaying the frame count.

4,423,939

LENS ATTACHMENT AND METHOD FOR MULTIPLE IMAGING

David C. Hayles, 11403 Sagestanley, Houston, Tex. 77089

Filed Sep. 3, 1981, Ser. No. 302,291
Int. Cl.³ G03B 41/00
U.S. Cl. 354—122 3 Claims



1. A multiple imaging attachment to be utilized with a camera which is adjustable to provide varying amounts of light to the lens of the camera to expose the film comprising:

a housing having an opening formed therethrough for allowing light to be transmitted longitudinally through the housing;

means for masking the opening in the housing and for compensating for changes in the amount of light used to expose different portions of the film;

means for adjusting the masking and compensating means to direct light to different sized portions of the lens so that varying numbers of exposures can be taken on the film;

means for coupling the housing to the camera so that the opening in the housing is aligned to transmit light to the lens and for facilitating rotation of the masking and compensating means so that light is directed to selected portions of the lens, including:

a first track formed in portions of a first section of the housing;

a first pair of locking members held in the first track in alignment with and adjacent to selected portions of the camera so that the first section of the housing can be rotated thereon;

a second track formed in another portion of the first section of the housing;

a second pair of locking members held in the second track in alignment with and adjacent to a second section of the housing so that the second section of the housing is locked to the first section of the housing;

means for facilitating movement of the masking and compensating means along a diagonal predetermined path in the housing so that when the amount of light is changed to expose different selected portions of the film the masking and compensating means can be moved a predetermined distance in the housing to compensate for changes in the amount of light used to expose the different portions of the film comprising:

a pair of spaced abutments formed in the housing and aligned to extend along the outer periphery of the lens; and

a pair of spaced tracks formed on the masking and compensating means, the spaced tracks on the masking and compensating means being aligned to engage and cooperate with the spaced abutments in the housing to secure the masking and compensating means for slidable movement in the housing between the spaced abutments.

4,423,940

PHOTOGRAPHIC EQUIPMENT

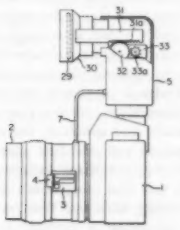
Toshitsugu Kashihara; Hiroshi Iwata; Tsunemi Yoshino, all of Nara, and Akitoshi Morioka, Osaka, all of Japan, assignors to West Electric Co., Ltd., Osaka, Japan

Filed Jan. 11, 1982, Ser. No. 338,528

Claims priority, application Japan, Jan. 20, 1981, 55-7675; Jan. 20, 1981, 55-7676

Int. Cl.³ G03B *15/05*

U.S. Cl. 354—149 **6 Claims**



1. A photographic equipment comprising

(A) a beam-angle changing means comprising

(a) a projection lens positioned in front of a flash lamp of an electronic flash unit,

(b) a movable hood which supports said projection lens and which is movable toward or away from said flash lamp in the direction of the optical axis of the flashed light,

(c) an electric motor, and

(d) a transmission means which is interposed between said movable hood and said motor for translating the rotation of said motor into the linear movement of said movable hood;

(B) a focal-length sensing means which is adapted to generate an electrical output signal which is representative of the focal length of a photographic lens used; and

(C) a control means responsive to said electrical output signal from said focal-length sensing means for controlling said motor,

whereby said movable hood is moved toward or away from said flash lamp of said electronic flash unit so that the beam angle thereof can be varied depending upon the focal length of said photographic lens used.

4,423,941

DEVICE FOR SHIFTING LENS GROUP

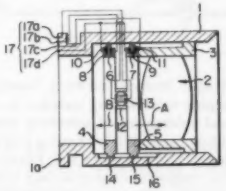
Hiroshi Iwata, Nara, and Tsunemi Yoshino, Ibaraki, both of Japan, assignors to West Electric Co., Ltd., Osaka, Japan

Filed May 28, 1981, Ser. No. 267,686

Claims priority, application Japan, Jun. 10, 1980, 55-78618

Int. Cl.³ G03B *3/10*; Go2B *7/11*

U.S. Cl. 354—195 **11 Claims**



1. A lens shifting device characterized by comprising

a stationary cylinder having a mounting means adapted to engage with a mating means of a main body of an equipment which uses an optical lens assembly which must be shifted for focusing,

an inner cylinder which is slidably fitted into said stationary cylinder and in which is securely mounted a lens group,

contact members made into slidable contact with the inner cylindrical surface of said stationary cylinder, one of which being interconnected with said inner cylinder coaxially,

locking means adapted to cause said contact members to lock to said stationary cylinder, and

expandable-and-collapsible means interconnecting between said contact members,

whereby said inner cylinder is caused to slide step by step relative to said stationary cylinder in the axial direction thereof and forwardly or backwardly by activating said locking means and said expandable-and-collapsible means by desired timing relationship.

4,423,942

CAMERA WITH SELECTABLE ELECTROMAGNETIC AND MECHANICAL SHUTTER RELEASE

Mikihito Furuya, Chofu, and Koichi Daitoku, Sagamihara, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Oct. 29, 1981, Ser. No. 316,416

Claims priority, application Japan, Nov. 5, 1980, 55-155476

Int. Cl.³ G03B *17/38*

U.S. Cl. 354—266 **5 Claims**

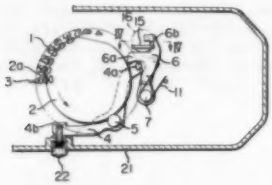
1. A camera which enables an electromagnetic release operation for releasing a shutter mechanism by an electromagnetic release device and a mechanical release operation for releasing said shutter mechanism by a mechanical release device, comprising:

(a) a release member operable to drive said electromagnetic release device and said mechanical release device, said release member being displaceable along a first stroke for triggering said electromagnetic release device and along a

second stroke exceeding said first stroke for triggering said mechanical release device;

(b) a limiting member for controlling the displacement of said release member and which is displaceable between a first position where the displacement of said release member is limited to said first stroke and a second position where the displacement of said release member along said second stroke is allowed;

(c) a release mode selecting member operable to move between a first range associated with said electromagnetic release operation and a second range associated with said mechanical release operation, said release mode selecting



member and said limiting member having cooperable means for keeping said limiting member at said first position when said release mode selecting member is positioned in said first range and for keeing said limiting member at said second position when said release mode selecting member is positioned in said second range;

(d) impeding means for acting on said release mode selecting member in order to prevent said release mode selecting member from moving from said first range to said second range when said limiting member is located at said first position; and

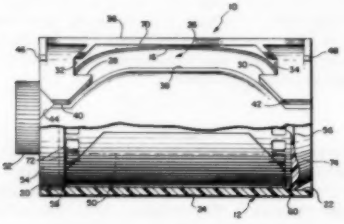
(e) a manually operating member which is operable to displace said limiting member to said second position.

4,423,943

PHOTOGRAPHIC FILM ASSEMBLAGE HAVING A NON-LIGHTTIGHT FILM WITHDRAWAL OPENING

Nicholas Gold, Arlington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 2, 1982, Ser. No. 364,804
Int. Cl.³ G03B *17/26*
U.S. Cl. 354—275 **3 Claims**



1. A photographic film assemblage comprising:

a film spool;

a strip of photographic film coiled about said film spool, said film having a leading end which is adapted to be attached to a film advance apparatus;

means for protecting said film from premature exposure by ambient light, said exposure protecting means comprising a sheet of opaque material secured in overlaying relation to at least the entire length of an outer convolution of said film, a pair of spaced collars located on said film spool, said collars being spaced from each other by a distance substantially equal to the width of said film, and an annular flange extending inwardly from each of said collars into overlaying relation with the edges of said film; and

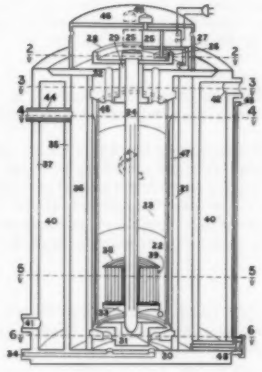
a housing for rotatably supporting said film spool and said film, said housing including means defining a passageway through which said leading end of said film may be freely advanced to the exterior of said housing and into the ambient light by rotating said film spool relative to said housing, said passageway has a width less than the width of said film thereby causing said film to be bowed widthwise prior to being wound upon said film spool.

4,423,944

VERTICAL ROTARY PHOTOGRAPHIC PROCESSOR

John M. Waters, Jr., P.O. Box 10392, Tallahassee, Fla. 32302

Filed Sep. 16, 1981, Ser. No. 302,825
Int. Cl.³ G03D *3/04*
U.S. Cl. 354—299 **13 Claims**



1. An apparatus is successively processing and treating a plurality of sensitized photographic materials in a plurality of predetermined quantities of stepped photographic processing and treatment fluids, said apparatus being light-tight when loaded with said materials, and further, said apparatus being adaptable to cooperate with means for regulating the temperature of said fluids within a desirable range, comprising,

(a) a vertically-oriented first receptacle means defining and forming a first processing chamber, said first receptacle also being cylindrical in shape, and said first chamber adapted to submersibly retain first sheets of said sensitized materials vertically and annularly therein with respect to said first receptacle and said first sheets being normally positioned with their sensitized surfaces facing outwardly with respect to said first receptacle's innermost wall;

(b) means cooperating with said first receptacle providing for rotatably mounting a circulation means centrally within said first chamber along the central vertical axis thereof, said circulation means comprising a cylindrical deformed shaft, and said circulation means adapted to directly circulate said fluids horizontally with respect to said sensitized surfaces of said first sheets within said first chamber when said circulation means is rotated;

(c) means providing for intermittently rotating said circulation means cooperating with said first receptacle;

(d) means providing access to said first chamber for loading and unloading sensitized materials and various cooperating parts of the apparatus;

(e) cooperating means providing for said fluids to enter said first chamber such that said fluids completely submerge said materials therein, and providing for discharge of said fluids from said first chamber;

(f) means providing for gases to enter into and exit therefrom said first chamber.

4,423,945

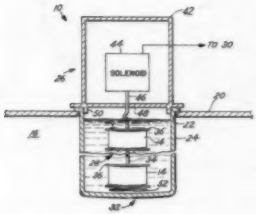
FILM HOLDING AND AGITATING APPARATUS

Seaton T. Preston, Winnetka; Frank L. Greenwald, Western Springs; William D. Eich, Arlington Heights, and Robert Berger, Chicago, all of Ill., assignors to G and G Products, Inc., Niles, Ill.

Filed May 26, 1982, Ser. No. 382,130

Int. Cl.³ G03B *3/04*

U.S. Cl. 354—313 **14 Claims**



1. A film processing apparatus for use in conjunction with a film processing container comprising, in combination:

film holding means for holding a film, said film holding means being operable within said film processing container between a rest position and an energized position;

energization means for providing a series of pulses; and

power head means, adapted to fit said film processing container and interconnect with said film holding means, for receiving said series of pulses and for moving said film holding means between said rest position and said energized position in response to each pulse within said series, said power head means substantially closing said film processing container so as to substantially avoid the passage of light into said film processing container during movement of said film holding means therein;

whereby said film processing apparatus provides an agitating action as a result of the movement of said film holding means.

4,423,946

LOCKING ARRANGEMENT FOR GUIDES IN PHOTOGRAPHIC MATERIAL DEVELOPER APPARATUS

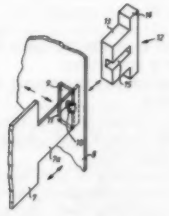
Adolf Fleck, Unterhaching; Hans Ketterer, Munich, and Gerald Pietsch, Kaufbeuren, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 14, 1982, Ser. No. 418,089

Claims priority, application Fed. Rep. of Germany, Dec. 11, 1981, 3149111

Int. Cl.³ G03D *3/08*

U.S. Cl. 354—319 **6 Claims**



1. Conveying arrangement for photographic material developer apparatus of the type having a vessel including at least two oppositely disposed sidewalls, said arrangement comprising at least one conveying roller, and at least one material guiding sheet positioned between said oppositely disposed sidewalls, and said arrangement further including means on at least one of said sidewalls adapted to releasably secure said sheet to said sidewall, said means comprising at least one fastening element on said sidewall adapted to prevent movement of said sheet in all directions but an unlocking direction, and said fastening element including a cutout in said sidewall, and at least one positioning pin in said cutout adapted to cooperate with an opening in said sheet, said means further including a removable locking element which is adapted to prevent movement of said sheet in an unlocking direction.

4,423,947

RACK FOR TRANSPORTING PHOTOSENSITIVE MATERIAL THROUGH A BATH

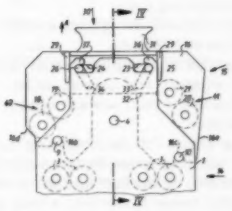
Nikolaus Jelinek; Hans Ketterer, and Helmut Schausberger, all of Munich, Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 13, 1982, Ser. No. 417,707

Claims priority, application Fed. Rep. of Germany, Nov. 27, 1981, 8134723[U]

Int. Cl.³ G03D *3/08*

U.S. Cl. 354—320 **23 Claims**



1. An arrangement for advancing articles through a bath comprising:

(a) a submersible first unit having transporting means designed to be immersed in and to convey the articles through the bath;

(b) a second unit having an outlet region for the articles and being engageable with said first unit in such a manner that said outlet region is located externally of the bath, said second unit being separable from said first unit and including gripping means for gripping the same, and said gripping means being movable relative to the remainder of said second unit; and

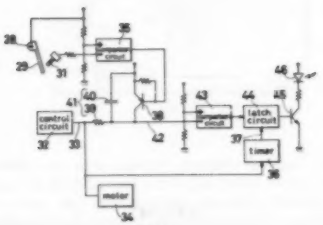
(c) cooperating coupling means on said units for releasably locking said units to one another, said coupling means comprising a rod on said second unit and a hook on said first unit designed to engage said rod, and said second unit being provided with guide means guiding said rod for movement along a predetermined direction, said gripping means being provided with receiving means receiving said rod for sliding movement relative to said gripping means.

4,423,948

DUAL COMPONENT DEVELOPING MATERIAL DETECTING DEVICE FOR ELECTROSTATIC COPYING APPARATUS

Hiroshi Kimura, Neyagawa; Masahiko Hisajima, Osaka; Yutaka Shigemura, Takarazuka; Isao Yada, Neyagawa; Yoichiro Irie, Suita, and Kiyoshi Morimoto, Osaka, all of Japan, assignors to Mita Industrial Company Limited, Osaka, Japan

Filed Jul. 17, 1981, Ser. No. 284,563
Claims priority, application Japan, Jul. 23, 1980, 55-101771
Int. Cl.³ G03G 15/06
U.S. Cl. 355—14 D 1 Claim



1. An apparatus for use in an electrostatic copying apparatus for monitoring the concentration of toner in a developer having a mixture of toner and carrier particles, said apparatus comprising:

a hopper for supplying toner;

a stirring roller rotatable for stirring a carrier and the toner supplied from said hopper;

detecting means for detecting the amount of the developer at a position adjacent said stirring roller, said detecting means comprising a fixed contact member and a movable contact member;

discriminating means for discriminating an output signal from said detecting means for a predetermined interval during a period of rotation of said stirring roller, said discriminating means comprising a time constant circuit including a capacitor and a resistor connected in series, a switching element connected in parallel with said capacitor, a first comparison circuit for controlling said switching element when said fixed contact member and said movable contact member contact each other, a second comparison circuit for determining whether the level of an output from said time constant circuit is greater than a predetermined level, a timer for supplying an output signal after every said predetermined interval during a copying operation while said stirring roller is rotated, and a latch circuit operable in response to said output signal from said timer for storing a discriminated signal from said second comparison circuit;

indicating means operable in response to an output signal from said discriminating means for indicating when the amount of said toner in the developer is less than a predetermined amount; and

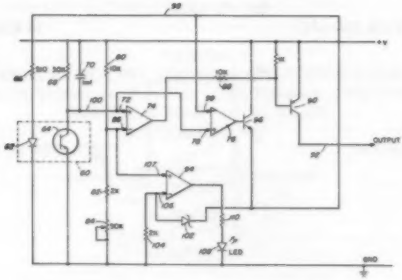
said discriminating means further comprising driving means, operable in response to the output signal from said latch circuit, for operating said indicating means during a time period when said latch circuit stores said discriminated signal from said second comparison circuit.

4,423,949

JAM DETECTION APPARATUS AND METHOD IN A PHOTOCOPIER

Raymond G. Cormier, Nashua; Richard A. Bridges, Manchester, and Jeffrey L. Peterson, Nashua, all of N.H., assignors to Nashua Corporation, Nashua, N.H.

Filed Aug. 9, 1982, Ser. No. 406,215
Int. Cl.³ G03G 15/00
U.S. Cl. 355—14 R 9 Claims



9. In a photocopier having a moving photosensitive surface and a sheet stripping station for removing a copy sheet material from contact with the photosensitive surface, a method for detecting a missed sheet pick-off at a position past the sheet stripping station comprising the steps of

sensing the presence of the sheet material on the photosensitive surface at said position and providing a first electrical output signal in response thereto,

conditioning the photocopier to a jam state in response to said electrical signal when a sheet material is sensed on the drum, and

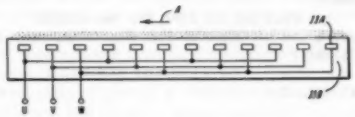
automatically compensating for variations in said sheet sensing mechanism using a signal feedback to accommodate sensing mechanisms within a range of manufacturing tolerance.

4,423,950

CLEANING DEVICE FOR AN ELECTROPHOTOGRAPHIC REPRODUCING MACHINE

Shizuo Sagami, Tokyo, Japan, assignor to Rank Xerox Limited, London, England

Filed Mar. 8, 1982, Ser. No. 355,499
Claims priority, application Japan, Mar. 18, 1981, 56-39966
Int. Cl.³ G03G 15/00, 15/08
U.S. Cl. 355—15 14 Claims



1. Toner transport apparatus for use in the process of xerography, said apparatus comprising:

a generally cylindrical housing having a first opening in the periphery thereof:

a toner transport member partially disposed in said housing and protruding through said opening for contact with toner to be transported;

means disposed internally of said housing and adapted to prevent toner from accumulating on the periphery of said housing and cooperating with said toner transport member for conveying toner adjacent the periphery of said housing away from said first opening; said housing having a second opening in the periphery thereof, said means

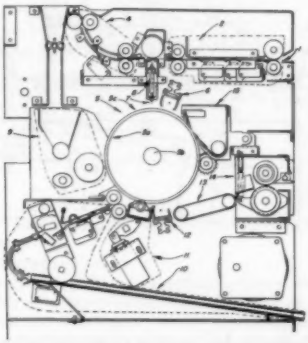
disposed internally of said housing and said transport member being adapted to deliver said toner to said second opening where it can be removed from said housing.

4,423,951

ROLLER TRANSFER CORONA APPARATUS

Bruce M. Rightmyre, Carol Stream, Ill., assignor to Petro-Fax, Carol Stream, Ill.

Filed Jun. 29, 1982, Ser. No. 393,315
Int. Cl.³ G03G *15/16*
U.S. Cl. 355—3 TR **16 Claims**



1. A transfer corona assembly for use in a copy machine having a photoconductor coated element with toner particles forming an image and in which the image is transferred onto copy paper having at least one fold, said transfer corona assembly eliminating image voids at said fold and comprising:

contact means for physically engaging said folded copy paper and forcing said folded copy paper against said photoconductor coated element;

corona means for effecting the transfer of said toner particles forming an image from said photoconductor coated element to said folded copy paper;

housing means within which said corona means and said contact means are located; and

said corona means positioned adjacent to and spacially separated from said contact means for causing said toner particles to transfer to said copy paper at the point of contact between said copy paper and said photoconductor coated element and thereby also effecting transfer of said toner particles at the fold of said copy paper.

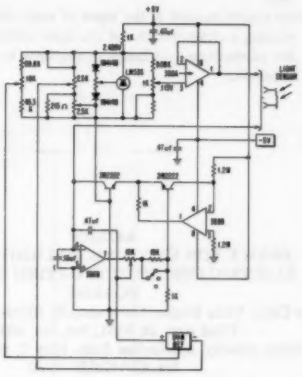
4,423,952

METHOD AND APPARATUS FOR COMPUTING DATA FOR PRODUCING PHOTO PRINTS

Harland K. Cook, 528 Kingsley Ave., Waterloo, Iowa 50701

Filed Jun. 3, 1981, Ser. No. 245,129
Int. Cl.³ G03B *27/80*
U.S. Cl. 355—38 **3 Claims**

1. A method of printing photo print and the like from negative or positive film transparencies placed into a lighted printing means capable of projecting the image from said film when placed in said lighted printing means, said method comprising the steps of: measuring the intensity of the light produced by said printing means without the film to be printed in place; measuring the intensity of the light produced by the average density of the image produced by said printing means with the film in place in said printing means; subtracting the intensity of the first measurement from the second measurement to produce a tentative reading that is a multiple of the exposure time; placing a desired filter in place in the printing means; and



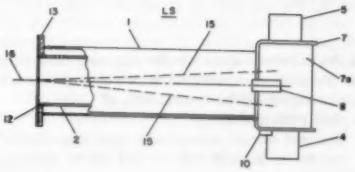
measuring the intensity of the light a third time to produce a final reading of the exposure time of the film to be printed.

4,423,953

HIGH INTENSITY LIGHT SOURCE

William W. Burnham, Mineola, N.Y., assignor to Hazeltine Corporation, Greenlawn, N.Y.

Filed Mar. 30, 1981, Ser. No. 248,771
Int. Cl.³ G03B *27/54*
U.S. Cl. 355—70 **10 Claims**



1. A light source comprising:

a reflective tunnel having openings defining an input and an output;

a plurality of lamps;

light diffusing means located at the output opening of said tunnel for integrating the light incident thereon;

first means for supporting said lamps at the input of said reflective tunnel for directing light emitted by said lamps into said reflective tunnel and directly toward said light diffusing means;

means for aiming light emitted by each of said lamps at an aiming point located on the optical axis of said reflective tunnel, said aiming point being located between the midpoint of said reflective tunnel and the output of said reflective tunnel;

said means for aiming including a plurality of elliptical reflectors each having an inner and an outer focal point, each said reflector associated with one of said lamps such that said lamp is located at the inner focal point of said reflector associated therewith, the focal axes of said reflectors intersecting at said aiming point;

second means for compensating for the alignment between each of said lamps, said means for aiming and said light diffusing means so that light emitted by said lamps is aimed directly toward said light diffusing means;

said second means including a substrate located at the input

opening of said reflective tunnel, the outer focal points of said reflectors located in the same plane as the substrate; and

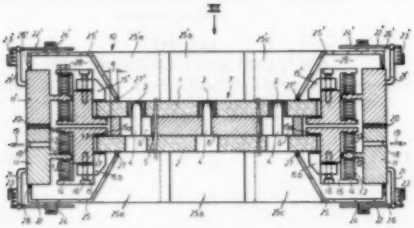
third means located at the input of said reflective tunnel for sensing a characteristic of the light within said tunnel and for controlling said lamps in response to the sensed characteristic.

4,423,954

DEVICE FOR EXPOSING TO LIGHT PRINTED ELECTRIC CIRCUIT SUPPORTING PLATES OR BOARDS

Ezio Curti, Viale Regina Giovanna, 38, Milano, Italy

Filed Apr. 28, 1981, Ser. No. 253,438
Claims priority, application Italy, May 7, 1980, 21840 A/80
Int. Cl.[3] G03B *27/60*
U.S. Cl. 355—73 16 Claims



1. An improved apparatus for exposing desired regions of a layer photosensitive material as determined by a pattern for a circuit comprising the combination of

a plate pack including

first and second substantially rigid glass plates;

means on at least one of said plates defining a circuit pattern;

a support member including a substantially rigid support plate;

a layer of photosensitive material carried by said support plate adjacent said at least one glass plate on which said pattern exists;

first clamp means for firmly gripping said first glass plate;

second clamp means for firmly gripping said second glass plate;

means for supporting said first and second clamp means to permit relative movement therebetween, said clamp means being supported thereby such that said glass plates are in generally parallel relationship with said support plate therebetween; and

means defining a vacuum chamber surrounding the periphery of said plate pack,

said chamber having edge portions in sealing engagement with marginal portions of the outwardly facing surfaces of said glass plates so that the pattern area of said at least one glass plate is unobscured and so that the chamber interior is in communication with the spaces between said plates; and

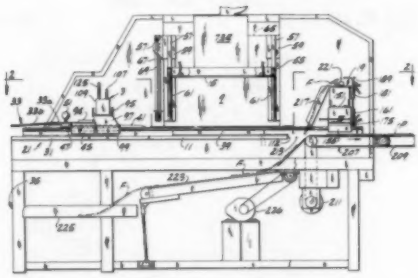
means for drawing a high vacuum in said chamber and said spaces, whereby said pattern and photosensitive material can be exposed to light while a vacuum is drawn to hold the plates tightly together without danger of damaging said glass plates.

4,423,955

PHOTOGRAPHIC PRINTING APPARATUS

John W. Powers, Brookline, Mo., assignor to Western Litho Plate & Supply Co., St. Louis, Mo.

Filed Mar. 26, 1982, Ser. No. 362,515
Int. Cl.[3] G03B *27/04*
U.S. Cl. 355—99 52 Claims



1. Apparatus for exposing photosensitized plates to light through films comprising:

means for holding a stack of plates to be exposed and a stack of films through which plates are to be exposed, with the stack of films above and offset in a rearward direction from the stack of plates so that the stack of plates extends forward from under the stack of films;

an exposure station at which a plate is exposed to light through a film, said exposure station being located forward of the stack holding means;

means for delivering a plate from the plate stack and a film from the film stack to an exposure position at the exposure station comprising a carriage movable forward from a retracted position over the stacks to the exposure station, and rearward back to retracted position, and plate gripper means and film gripper means movable up and down on the carriage, the film gripper means being adapted to grip the top plate of the plate stack forward of the film stack and the film gripper means being offset rearward from the plate gripper means for gripping the top film of the film stack;

and means for operating the carriage, the plate gripper means and the film gripper means to actuate the plate gripper means when the carriage is in retracted position to pick up a plate from the plate stack and to actuate the film gripper means when the carriage is in retracted position to pick up a film from the film stack with the film above and offset rearward from the plate, to move the carriage to a first forward position at the exposure station wherein the plate is adapted on being released to occupy its exposure position, to lower the plate gripper means and release the plate to deposit the plate in exposure position, to advance the carriage farther forward a distance corresponding to the offset of the film from the plate to a second forward position at the exposure station wherein the film is adapted on being released to overlie a plate in exposure position, to lower the film gripper means and release the film to deposit the film in exposure position overlying the plate, and to raise the gripper means and return the carriage to retracted position.

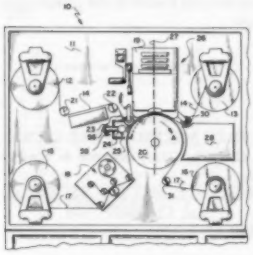
4,423,956
VAPOR DEPOSIT CONTACT PRINTING METHOD AND APPARATUS

Robert A. Gordon, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 238,778, Feb. 27, 1981. This application Apr. 26, 1983, Ser. No. 487,994

Int. Cl.³ G03B *27/10*

U.S. Cl. 355—110 **9 Claims**



1. Apparatus for photographic contact printing comprising, in combination:

means for generating a vapor;

means for bringing together at a nip-forming station, and for transporting at substantially the same speed past an exposure position and in intimate overlying relationship, a first, photosensitive web and a second, image-bearing web;

means at said exposure position for directing light through said second web to expose said photosensitive web; and

means for directing said vapor, at the nip-forming station for providing a thin layer of vapor condensate between said webs to establish evanescent coupling between them as they pass said exposure position.

4,423,957
OPTICAL INSTRUMENTS

Joseph Poole, Orpington, England, assignor to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

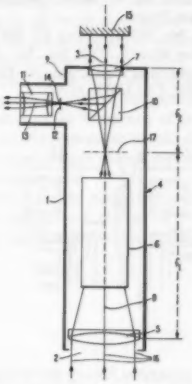
Filed Sep. 8, 1981, Ser. No. 300,353

Claims priority, application United Kingdom, Sep. 16, 1980, 8029892

Int. Cl.³ G01B *11/27*; B02B *27/32*

U.S. Cl. 356—153 **10 Claims**

1. An optical instrument for providing a view along the normal to the surface of a plane mirror including an afocal telescope having a first aperture, a first objective lens, a second objective lens and a second aperture mutually disposed along a longitudinal optical axis and having an angular magnification of +2 in the first-to-second direction, said telescope being positioned in use so that the surface of the plane mirror is adjacent the second aperture and substantially orthogonal to the longitudinal optical axis; and a comparator having a beam splitter, an eyepiece and an eyepiece graticule mutually disposed along a transverse optical axis, the beam splitter being located on the longitudinal axis so as to deflect light entering



axially through the second aperture from the longitudinal axis to the transverse axis.

4,423,958
TEST APPARATUS FOR DIGITAL PHOTOELECTRIC LENGTH OR ANGLE MEASURING INSTRUMENT

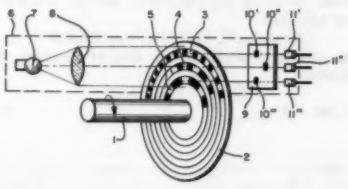
Walter Schmitt, Hochgernstrasse 22, D-8225, Traunreut, Fed. Rep. of Germany, assignor to Dr. Johannes Heidenhain GmbH, Traunreut, Fed. Rep. of Germany

Filed Mar. 18, 1981, Ser. No. 245,105

Claims priority, application Fed. Rep. of Germany, Mar. 20, 1980, 3010611

Int. Cl.³ G01B *11/00*; G01D *18/00*

U.S. Cl. 356—375 **16 Claims**



1. In a digital electric position measuring instrument comprising a scale having at least one division, a scanning unit for scanning the division to generate a scanning signal, means for mounting one of the scale and the scanning unit for relative movement with respect to the other of the scale and the scanning unit, and an evaluating unit having a trigger circuit for evaluating the scanning signal, the improvement comprising:

means for generating at least one test signal; and

means for selectively applying the test signal to the trigger circuit temporarily to vary a trigger threshold of the trigger circuit by a selected amount;

said generating means and said applying means operating to provide a simple, reliable check of the trigger threshold of the trigger circuit.

4,423,959

POSITIONING APPARATUS

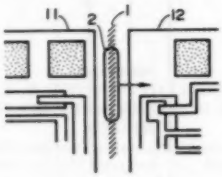
Kiwao Nakazawa, Tokyo; Kyoichi Suwa, Kawasaki, and Shoichiro Yoshida, Tokyo, all of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Continuation of Ser. No. 267,435, May 27, 1981, abandoned. This application Mar. 7, 1983, Ser. No. 473,042

Claims priority, application Japan, Jul. 10, 1980, 55-93223

Int. Cl.³ G01B 11/00

U.S. Cl. 356—400 **14 Claims**



1. In a positioning apparatus having plural alignment marks provided in determined positions on an object to be aligned, means for projecting plural coherent light beams onto said object, means for causing two-dimensional relative scanning motion between said object and said coherent light beams, and plural detecting means for photoelectrically detecting the light diffracted from each of said coherent light beams by each of said alignment marks;

the improvement wherein said projecting means comprises plural converging means for forming each coherent light beam into a stripe-shaped beam extended in a direction substantially perpendicular to the scanning direction of said scanning means, and each of said alignment marks comprises plural short line segments arranged in a stripe extended in a direction substantially perpendicular to the scanning direction of said scanning means and each inclined approximately by 45° with respect to said scanning direction.

4,423,960

TWIN-SCREW DEGASSING EXTRUDER FOR DEGASSING THERMOPLASTIC MATERIALS OR THE LIKE

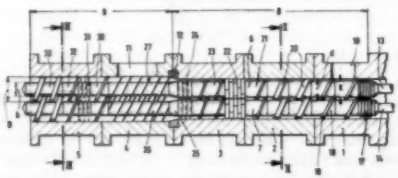
Dietmar Anders, Hanover, Fed. Rep. of Germany, assignor to Hermann Berstorff Maschinenbau GmbH, Hanover, Fed. Rep. of Germany

Filed Jul. 7, 1981, Ser. No. 281,029

Claims priority, application Fed. Rep. of Germany, Jul. 16, 1980, 3026842

Int. Cl.³ B29B 1/10

U.S. Cl. 366—75 **3 Claims**



1. A twin-screw degassing extruder for removing gases from thermoplastic materials comprising:

(a) a housing defining a plasticizing and homogenizing stage, and a degassing and discharging stage, the housing in said degassing and discharging stage having a larger internal diameter when compared with the internal diameter of the housing in said plasticizing and homogenizing stage,

(b) screw members extending through said stages, the screw members in said degassing and discharging stage having a core diameter which is smaller than the core diameter of the screw members in said plasticizing and homogenizing stage, and the external diameters of the webs of the screw members in said degassing and discharging stage corresponding substantially to the relatively larger internal diameter of the housing in such region,

whereby a relatively large volume is created in the degassing and discharging stage for improved degassing without affecting the desired results in the plasticizing and homogenizing stage.

4,423,961

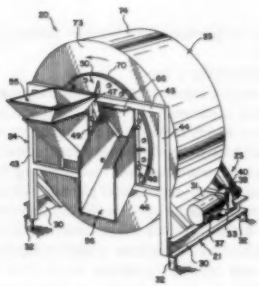
FEED MIXING APPARATUS

Roy I. Steiner, Orrville, Ohio, assignor to Sevenson Company, Orrville, Ohio

Filed Jun. 3, 1982, Ser. No. 384,535

Int. Cl.³ B01F 9/06

U.S. Cl. 366—183 **7 Claims**



1. A mixing apparatus for livestock feed constituents having a portable base and a rotatable cylindrical drum with internal mixing and conveying blades, said drum being mounted on a shaft positioned above said base and projecting coaxially through a cylindrical opening in a front wall of said drum, said base carrying a pedestal structure extending upwardly adjacent a rear wall of said drum for mounting a rear end of said drum shaft:

said base also carrying a frame grate extending upwardly adjacent said drum front wall and having a vertically extending medial plate for mounting a front end of said drum shaft;

said front frame grate also having two openings formed therein, one on either side of said medial plate, one said opening being for supply of feed constituents, the other said opening being for discharge of mixed feed;

said front frame grate also providing a suspension mounting for a circular drum service plate, said service plate hanging free around the perimeter, being positioned coaxially around said drum shaft, and being oriented parallel with and adjacent to said drum cylindrical opening;

said drum service plate having two openings formed therein, one said opening being a supply opening in alignment with said frame grate supply opening, the other said opening being a discharge opening in alignment with said frame grate discharge opening;

said front frame grate also carrying a hopper chute extending downwardly through said aligned supply openings and said drum cylindrical opening and a closable scoop chute extending upwardly through said aligned discharge openings and said drum cylindrical opening.

4,423,962
DEVICE FOR THE DISAGGREGATION OF POWDERY MATERIAL IN A RESERVOIR

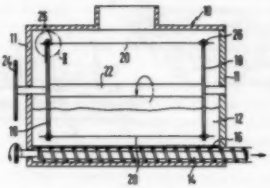
Joseph Knott, Tutzing, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Apr. 5, 1982, Ser. No. 365,789

Claims priority, application Fed. Rep. of Germany, Apr. 15, 1981, 3115304

Int. Cl.³ B01F *7/02*

U.S. Cl. 366—279 **10 Claims**



1. Apparatus for the disaggregation of powdery toner material contained in a reservoir from which said toner material is fed to the developer station of a printing machine, comprising a lateral shaft seated for rotation in said reservoir with laterally spaced apart disks mounted on said shaft, at least one relatively thin strip stretched between said disks, a clamping means for fixedly engaging a corresponding free end of said strip, said clamping means being removably received in a lateral bore formed correspondingly on one said disk and held therein against lateral movement by stop means and said clamping means engaging said strip such that each corresponding free end thereof projects outward of said corresponding disk toward an adjacent sidewall of said reservoir for raking toner material between said disks and between said disks and adjacent sidewalls of said reservoir.

4,423,963
ELECTRONIC TIMEPIECE HAVING ILLUMINATION LEVEL

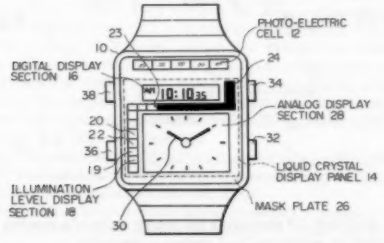
Fuminori Suzuki, Tanashi, Japan, assignor to Citizen Watch Company Limited, Tokyo, Japan

Filed Sep. 15, 1982, Ser. No. 418,130

Claims priority, application Japan, Sep. 18, 1981, 56-147451; Aug. 17, 1982, 57-141654

Int. Cl.³ G04B *19/22, 19/24*

U.S. Cl. 368—68 **13 Claims**



1. In an electronic timepiece powered by a battery and provided with a standard frequency signal source for generating a standard frequency signal, timekeeping circuit means for frequency dividing said standard frequency signal to produce a plurality of timing signals, and time indicating means responsive to said timing signals for providing a display of time information, an illumination level display system, comprising:

photo-electric sensing means for generating an output voltage which varies in amplitude with the level of illumination incident thereon;

illumination-controlled oscillator circuit means powered by said output voltage from the photo-electric sensing means for generating an oscillation signal whose frequency is determined by the amplitude of said output voltage;

frequency measurement circuit means coupled to receive said oscillation signal and said timing signals from said timekeeping circuit means, for generating data in digital form indicative of the frequency of said oscillation signal;

display drive means responsive to said digital data from said frequency measurement circuit means for generating display drive signals; and

illumination level display means driven by said display drive signals for providing a display of the illumination level incident on said photo-electric sensing means.

4,423,964
TIMEPIECE WITH ALARM AND TIME SETTING DEVICE

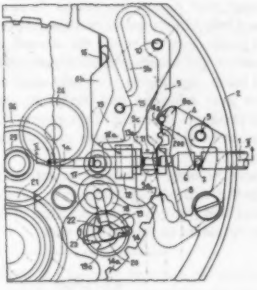
Jean-Bernard Griessen, Cornaux, and Willy Cleusix, Le Landeron, both of Switzerland, assignors to Ebauches Electroniques S.A., Marin, Switzerland

Filed Apr. 15, 1982, Ser. No. 368,882

Claims priority, application Switzerland, Apr. 23, 1981, 2661/81

Int. Cl.³ G04B *23/02, 19/24*

U.S. Cl. 368—74 **5 Claims**



1. A timepiece for indicating time data, comprising:

a rotatable stem which is movable axially and can occupy at least two different axial positions, namely a pushed-in position and a pulled-out position;

first setting means responsive to rotation of said stem in its said pulled-out position to alter the indicated time data;

an alarm device having a set condition and an off condition, for, when in its set condition, producing an alarm at a preadjusted time; and

control means for changing over the condition of said alarm device;

wherein said stem is further displaceable axially inwards beyond its said stable pushed-in position to a non-stable axial position; and

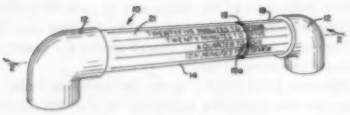
wherein said control means is responsive to the positioning of said stem in said non-stable position for changing-over the condition of said alarm device.

4,423,965

ELONGATED CLOCK

Johannes F. J. M. Muller, Dijkstraat 1, 5398 JP Maren-Kessel, and Joannes A. M. Van Dongen, Burchtenlaan 174, 5235 GN 's-Hertogenbosch, both of Netherlands

Filed Sep. 30, 1982, Ser. No. 431,350
Int. Cl.[3] G04B *45/00, 19/02, 13/02*
U.S. Cl. 368—78 7 Claims



1. A clock having an elongated body with segmented rotating members adapted to display the time, the improvement comprising:

a drive motor coupled to a shaft and disposed to turn the shaft at a constant speed;

a first time indicating roll cylinder having a length greater than its diameter and having twelve divisions, each division having a time interval indicated thereon and displaying minutes of an hour in words and also having means coupled to said shaft and adapting the first roll to rotate constantly in unison with the shaft;

a second time indicating roll having a length greater than its diameter and mounted for rotation about said shaft and also having twelve divisions, each division having a time interval indicated thereon and displaying the hours of one to twelve in words;

a drive gear means located at one end of the elongated body coupled with said shaft and adapted to produce rotation of the second roll;

pinion gear means adjacent the drive gear and engageable with said drive gear;

said second time indicating roll for displaying hours also having gear means associated therewith and said gear means being mounted to move in response to movement of said pinion gear to rotate the second roll;

said pinion gear having teeth formed about its periphery, said teeth engageable with said gear means and with the drive gear whereby one complete rotation of the drive gear produces indexing of the pinion gear and only partial rotation of the gear means and second, time indicating roll,

elongated housing means encapsulating the first and second cylinders and having bearings to mount and receive each end of said shaft to permit rotation of the shaft for turning said cylinders to display the time.

4,423,966

ALARM CONTROL SYSTEM FOR ALARM CLOCK

Masuo Ogihara; Nobuo Shinozaki; Tadashi Ishikawa, and Yoichi Seki, all of Yotsukaido, Japan, assignors to Seiko Koki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 19, 1980, Ser. No. 218,181
Claims priority, application Japan, Jan. 30, 1980, 55/9712
Int. Cl.[3] G04B *23/00*
U.S. Cl. 368—263 2 Claims

1. In an alarm clock, the combination comprising:

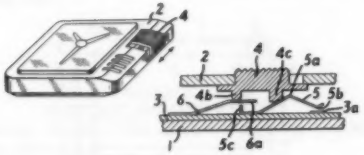
an alarm clock case having a side portion with an elongate slot therethrough;

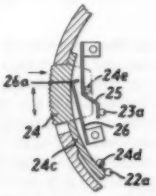
a single alarm control button dimensioned to fit within and extend through the elongated slot and dimensioned to travel within said slot along the length dimension of said slot and pivot downwardly about one edge of said alarm control button down into the elongate slot;

mounting means for mounting said alarm control button within and extending through the elongate slot slidable along the length dimension of the elongate slot and pivotal about one edge of said alarm control button down into the elongate slot;

a first switch positioned for engagement with said alarm control button and opened and closed according to the position of said alarm control button along the length dimension of the elongate slot;

a second switch positioned for engagement with said alarm control button and opened and closed according to the position of said alarm control button as it is pivoted about said one edge of said alarm control button; and





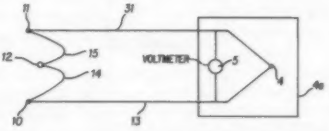
an alarm control circuit having an alarm mode control input connected to said first switch so that the position of said alarm control button along the length dimension of the elongate slot controls an alarm mode and having a snooze mode control input connected to said second switch so that the position of said alarm control button pivoted about said one edge of said alarm control button controls the snooze mode.

4,423,967

SYSTEM FOR MEASURING TEMPERATURES OF A FLOWING FLUID

Pierre C. Mouton, Grigny, France, assignor to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, "S.N.E.C.-M.A.", Paris, France

Filed Aug. 27, 1981, Ser. No. 296,855
Claims priority, application France, Aug. 28, 1980, 80 18638
Int. Cl.[3] G01K *13/08, 7/02*
U.S. Cl. 374—138 6 Claims



1. A system for measuring the temperature of a moving fluid, through an apparatus, said system comprising:

(a) a fluid sampling conduit in fluid communication with the main body of the fluid the temperature T of which is to be measured;

(b) at least one temperature sensor in a measurement probe located at a first point in said fluid sampling conduit, said at least one temperature measurement probe generating a signal T_1 representative of the temperature of the fluid in said fluid sampling conduit at said first point, said temperature T_1 differing from the temperature T by an error ΔT

because of the heat loss of the fluid from the conveyance of the fluid through the sampling conduit to said first point;

(c) at least one first corrective temperature sensor in a measurement probe disposed in said fluid sampling conduit, said at least one first corrective temperature measurement probe generating being connected so as to generate a signal T_3 which differs from the temperature T by essentially the same error ΔT as said at least one temperature measurement probe;

(d) at least one second corrective temperature sensor in a measurement probe disposed in said fluid sampling conduit, said at least one second corrective temperature sensor and said at least one first corrective temperature being connected so as to generate a signal T2 which differs from the temperature T by an error $2\Delta T$ which is essentially twice the error ΔT

(e) first calculation means for determining the difference ΔT between the signal T_3 supplied by said at least one first corrective temperature measurement probe and the signal T_2 supplied by said at least one second corrective temperature measurement probe; and

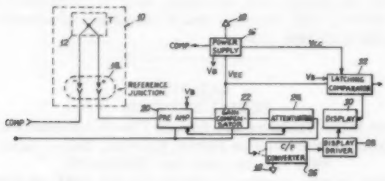
(f) second calculation means for calculating the temperature T according to the formula $T=T_1-\Delta T$.

4,423,968

ACCURATE HAND-HELD DIGITAL READOUT THERMOMETER

Donald S. Nemcek, Sr., Roselle, and John J. Selman, III, Vernon Hills, both of Ill., assignors to Cole-Parmer Instrument Company, Chicago, Ill.

Filed May 26, 1981, Ser. No. 266,639
Int. Cl.³ G01K 7/14
U.S. Cl. 374—170 **4 Claims**



2. A hand-held thermometer comprising:

thermocouple means having a measuring junction and a reference junction for providing a millivolt range electrical signal systematically related to temperature according to a nonlinear response curve;

power supply means having a supply voltage and including a plurality of diodes on a single substrate for providing a substantially stable and temperature independent reference voltage difference, means for defining a stable ground, and means responsive to ambient temperature for generating a temperature dependent compensating voltage for compensating for variations in said millivolt range electrical signal occasioned by variations in the temperature of said reference junction;

means for combining said millivolt range electrical signal and said temperature dependent compensating voltage to produce a compensated electric signal;

differential first amplification means including a plurality of integrated circuit amplifiers on a single substrate for providing a substantially temperature independent constant gain for amplifying said compensated electrical signal to produce a first amplified signal in the range of tenths of volts to volts;

second amplification means responsive to said first amplified signal and providing a gain that changes at preselected signal levels of said first amplified signal in order to provide a piecewise linear approximation to said nonlinear response curve whereby the output signal from said second amplification means is a second amplified signal substantially linearly related to the measured temperature of said measuring junction within preselected tolerances;

scale selection means operable by a user for providing scale selection signals corresponding to the temperature scale selected by the user;

analog/digital conversion means responsive to the said amplified signal and said scale selection signals for providing digital signals representing the temperature at said measuring junction according to the temperature scale selected by the user;

latching comparator means, comprising a Schmitt trigger and an exclusive OR-gate, responsive to said supply voltage and said reference voltage difference for detecting a low power supply voltage condition by producing a low voltage signal indicative thereof; and

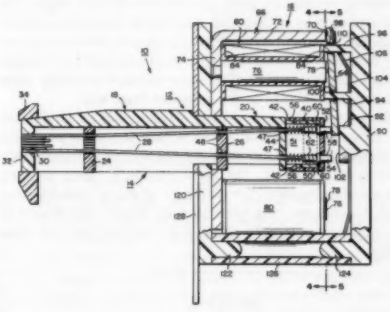
display means responsive to said digital signals for indicating the measured temperature in digital form according to the temperature scale selected by the user and responsive to said low voltage signal for indicating low voltage condition.

4,423,969

PRINT HEAD

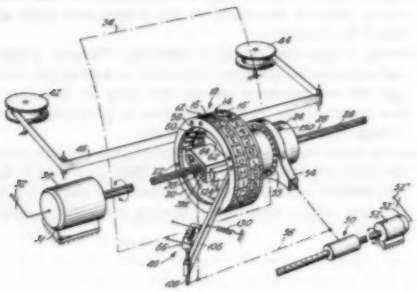
Ronald J. Kobryn, Longwood, Fla., assignor to Precision Handling Devices, Inc., Assonet, Mass.

Filed Jan. 6, 1982, Ser. No. 337,240
Int. Cl.³ B41J 3/12
U.S. Cl. 400—124 **24 Claims**



1. A dot print head of the ballistic type which comprises a plurality of print wires, a body having a nose piece with a coil frame assembly having a yoke with a plurality of solenoidal coils and armatures, said print wires being disposed in said nose piece and presenting opposite ends thereof for dot printing and for impact by said armatures to be ballistically driven to dot printing position, said body having means for guiding and mounting said armatures for movement between positions in impact delivery relationship with said print wires and return positions, said guiding and mounting means including spring means biasing said armatures towards said yoke and a support structure for said spring means on said frame assembly, said structure having a plurality of stationary guide posts disposed in the direction of movement of said armatures between said impact delivery and return positions, and openings in said armatures in alignment with said posts and through which said posts extend with spacing between said armature openings and said posts in guiding and assembled relationship with said armatures.

4,423,970
PRINTING APPARATUS
John T. Potter, Locust Valley, N.Y., assignor to Iquad Company Incorporated, Locust Valley, N.Y.
Continuation of Ser. No. 190,680, Sep. 24, 1980, abandoned. This application Aug. 13, 1982, Ser. No. 407,841
Int. Cl.³ B41J 1/10, 1/54
U.S. Cl. 400—141.1 8 Claims



7. Apparatus for printing characters in a line on a sheet medium comprising:

a cylindrical print drum with its axis parallel to the print medium mounted by a hub to a rotary drive shaft for rotation therewith and translational movement therealong, said drum comprising axially adjacent rings, each ring having a plurality of circumferentially disposed print characters with elongated shanks radially slidably retained in slots in their respective rings with said shanks extending within the inner peripheries of said rings, said slots and shanks of one said ring being circumferentially staggered relative to the slots and shanks of the adjacent ring whereby the slots and shanks of one said ring extend in axial planes extending between circumferentially adjacent type characters in the adjacent ring; and

an actuator assembly comprising a frame and an anvil radially movable therein, disposed within the inner peripheries of said rings and mounted for coincidental translational movement therewith, the anvil having a shank striking face axially elongated for striking a shank of said one ring or of the adjacent ring without translational movement of said actuator assembly relative to said cylindrical print drum;

4,423,971
PRINTER WITH A DOCUMENT GUIDE DEVICE
Yutaka Hira, Shizuoka, and Shinya Nakamura, Numazu, both of Japan, assignors to Tokyo Electric Co., Ltd., Tokyo, Japan
Filed May 17, 1982, Ser. No. 378,637
Claims priority, application Japan, May 22, 1981, 56-74182[U]
Int. Cl.³ B42J 1/08
U.S. Cl. 400—144.2 4 Claims

1. A printer comprising:

a platen;

a character-bearing print wheel having a central hub portion, a plurality of substantially straight spokes radially extending from said central hub portion in the same vertical plane respectively, and a plurality of character pads fixed to the respective free ends of said spokes and defining the outer diameter of the print wheel;

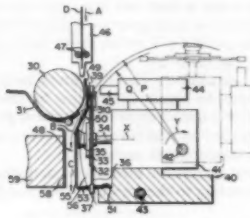
a horizontally extending drive shaft attached to said central hub portion of said print wheel for rotating said print wheel, said drive shaft having a free end portion;

carrier means rotatably supporting said drive shaft;

a mounting head for fixing said print wheel to said free end portion of said drive shaft, said mounting head extending from said print wheel toward said platen; and

a document guide device defining a document path in association with the platen, said document guide device allowing a document to pass downward through the document path;

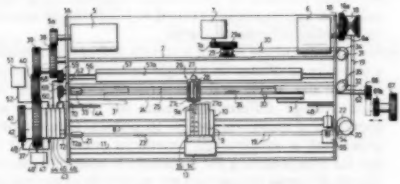
said document guide device including an upper plate section disposed between said platen and said character pads of said print wheel and curved along the circumference of said platen for insertion of the document, a slanted plate section connected to said upper plate section at the upper



end thereof and extending downward and slanted relative to said upper plate section and towards said platen, a lower base plate section fixed to said carrier means, and an intermediate plate section disposed substantially vertically and connected to the lower end of said slanted plate section at the upper end thereof and to said lower base plate section at the lower end thereof; and

said slanted plate section and intermediate plate section defining in association with said print wheel a space within which said mounting head is accommodated, whereby said mounting head is completely separated from said document path.

4,423,972
SERIAL PRINTER
Ikutaro Inoue, Takizawa, and Kousaki Yanata, Morioka, both of Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan
Filed Apr. 16, 1982, Ser. No. 369,213
Claims priority, application Japan, Apr. 17, 1981, 56-58066
Int. Cl.³ B41J 1/50
U.S. Cl. 400—155 6 Claims



1. In a serial printer having a plurality of types formed on the periphery of a cylindrical type carrier, said type carrier being held by carriage adapted to be moved across the paper, and means for pressing a desired type against said paper to effect printing, the improvement comprising:

(a) a type shaft splined to said type carrier and lying parallel to the direction of movement of said carriage;

(b) said means for pressing including a hammer lying opposite said type carrier via said paper and having a striking surface of an area sufficient for striking only one of said types, said hammer being adapted to be moved through a predetermined range in a direction parallel with the movement of said carriage;

(c) means including a hammer drive member lying along said

range of movement of said hammer for driving said hammer in the direction of said type carrier;

(d) means including a first pulse motor for moving said carriage;

(e) means including a second pulse motor for moving said hammer;

(f) means including a d-c motor rotating said type shaft and said hammer drive member, alternatively;

(g) means including a first clutch for controlling the transmission of rotation between said type shaft and said d-c motor;

(h) means including a second clutch for controlling the transmission of rotation between said hammer drive member and said d-c motor;

(i) means including a first electromagnet for selecting the stop position of said type carrier;

(j) a cam adapted to be controlled by operation of said first electromagnet; and

(k) means including a second electromagnet for controlling said cam after the stop position of said hammer has been selected.

4,423,973
RIBBON ELEVATING MECHANISM FOR RIBBON CASSETTES

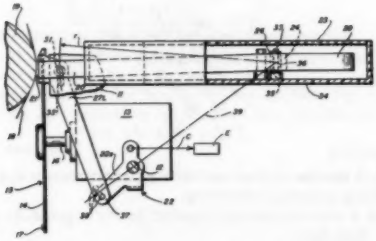
Rolf Theilen, Furth, Fed. Rep. of Germany, assignor to Triumph-Adler A.G. fur Buro- und Informationstechnik, Nuremberg, Fed. Rep. of Germany

Filed Dec. 7, 1981, Ser. No. 327,944

Claims priority, application Fed. Rep. of Germany, Jan. 17, 1981, 8101069[U]

Int. Cl.³ B41J *33/14*

U.S. Cl. 400—208 **1 Claim**



1. Ribbon elevating mechanism for a single element typewriter having a carriage movable from print point to print point along a print line, a ribbon cassette containing ribbon mounted on said carriage forwardly of said print line, a positioning motor support on said carriage below and rearwardly of said ribbon cassette, a positioning motor pivotally mounted on said positioning motor support, and a print element mounted to be driven to selected orientations by said positioning motor,

said mechanism including a pair of spaced generally vertically oriented ribbon guides supporting at the upper ends thereof a length of ribbon therebetween parallel to said print line for elevation to said print line,

vertical slots adjacent the upper ends of said ribbon guides and guide pins on said carriage extending into said slots for guiding said ribbon guides during elevation, the lower ends of said ribbon guides extending below and rearwardly of said positioning motor support,

a pair of ribbon lift arms pivotally mounted on said positioning motor support for powered pivoting movement and connected to the lower ends of said ribbon guides for elevating said ribbon guides,

said carriage supported cassette having ribbon exit and entry openings substantially opposite the upper ends of said ribbon guides,

said carriage supported cassette containing a rotatably mounted ribbon supply spool from which said ribbon is drawn off through said exit opening and a rotatably mounted take-up spool for taking up said ribbon through said entry opening,

vertical pins in said cassette located laterally outwardly of said supply and take-up spools,

ribbon deflection rollers rotatably mounted on said vertical pins for tracking said ribbon between said ribbon guides and said supply and take-up spools,

said deflection rollers being formed to pivot about an axis perpendicular to the rotational axis thereof as said ribbon is being elevated by said ribbon guides, and

said pivot axis of said deflection rollers being substantially equidistant from said guide pins on said carriage and said points of connection between said lift arms and said ribbon guides.

4,423,974
DRIVE COUPLING FOR RIBBON MECHANISM IN TYPEWRITERS AND SIMILAR MACHINES

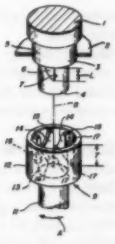
Siegfried Müller, Frankfurt, and Friedrich Teichmann, Feucht, both of Fed. Rep. of Germany, assignors to Triumph-Adler A.G. fur Buro- und Informationstechnik, Nuremburg, Fed. Rep. of Germany

Filed Dec. 7, 1981, Ser. No. 327,943

Claims priority, application Fed. Rep. of Germany, May 12, 1981, 8113901[U]

Int. Cl.³ B41J *35/00*

U.S. Cl. 400—242 **2 Claims**



1. An engage/disengage coupling having a rotatable driving and a rotatable drivien part,

said driving part having a central recess circumferentially bounded by a plurality of axially extending teeth defining between them substantially triangular recesses,

said driven part having an axially extending pilot shaft for reception into said central recess of said driving part, and

a single projection extending radially from said pilot shaft defining a substantially triangular tooth plugable into any of said triangular recesses,

said teeth on said driving part and said tooth on said driven part opposing drive and driven surfaces parallel to the axes of said driving and driven parts.

4,423,975
FORM TRIMMING APPARATUS AND METHOD FOR LINE PRINTER

Horst M. Krenz, St. Joseph, Mich., assignor to Heath Company, St. Joseph, Mich.

Filed Jun. 10, 1982, Ser. No. 387,092

Int. Cl.³ B41J *11/26*

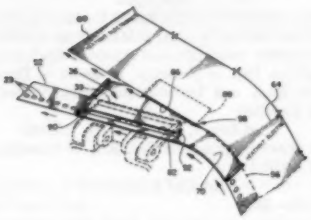
U.S. Cl. 400—616 **1 Claim**

1. For use in a line printer having a print head on a carriage traversing parallel to a platen for printing characters through an inked ribbon onto an edge-perforated continuous paper form having a laterally oriented, discardable paper-drive tear strip adjacent to each edge for separation from the center section of said form, said printer including two paper tractor members each including sprocket means for engaging the edge

perforations for pulling said form over an arcuate paper guide and past said print head, each of said tractor members having an outwardly swinging cover for opening and receiving said form, and upon closing, for retaining said sprocket means in engagement with said edge perforations of said form, a form-trimming apparatus for automatically separating the tear strips from said center section comprising:

two discrete form trimmers individually captivated under said hinged cover of an associated tractor member, each form trimmer including;

tear strip hold-down means having an arcuate section for holding said tear strips against said arcuate paper guide, and a flat section including slot means for passing said sprocket means to permit said flat section to hold said edge perforations of said tear strips in contact with said



sprocket means to enable said sprocket means to draw said form past said print head,

said flat section further including an upstanding tab at each end of said slot means engageable with the cover of an associated one of said tractor members for retaining said form trimmer in proper position during operation of the printer;

ramp means extending at an acute angle from said flat section of said hold-down means effective to ramp said center section of said form upwardly and away from said tear strips, said ramp means including an edge extending below the level of said flat section of said hold-down means for facilitating the shearing of said tear strips;

such that said tear strips are automatically separated from said center section of said form during traverse of said form through said line printer.

4,423,976

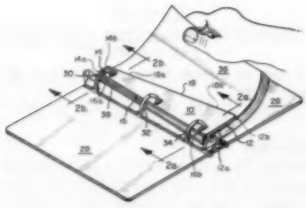
SHEET LIFTER

Walter Feldmahr, Northbrook, and Kenneth H. Oberg, Buffalo Grove, both of Ill., assignors to Acco World Corporation, Wheeling, Ill.

Continuation of Ser. No. 90,320, Nov. 1, 1979, abandoned. This application Jul. 28, 1981, Ser. No. 287,702

Int. Cl.³ B42F *13/10*

U.S. Cl. 402—80 L **18 Claims**



1. An improved binder comprising:

a front cover;

a back cover;

a spine connecting said back cover to said front cover;

a plurality of rings mounted on said spine for holding sheets placed therein; and,

a sheet lifter adjacent said front cover comprising a surface having an inner edge, an outer edge and a lower edge with inner and outer ends, said inner edge being contiguous to said inner end and substantially perpendicular to said lower edge, said outer edge being contiguous to said outer end and forming an angle between 70 and 84 degrees with respect to said lower edge, said inner edge extending substantially the length of the sheets placed in the binder and said lower edge extending only a portion of the distance across said sheets, said surface having a plurality of holes along its inner edge, said rings extending through said holes such that when said binder is closed said sheet lifter facilitates the movement of sheets inserted in said binder over said rings so as to prevent damage to said sheets.

4,423,977

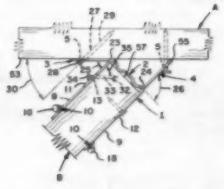
SINGLE ELEMENT SLOPE AND SKEW HANGER

Tyrell T. Gilb, Berkeley, Calif., assignor to Simpson Strong-Tie Company, Inc., San Leandro, Calif.

Filed Mar. 22, 1982, Ser. No. 360,313

Int. Cl.³ B25G *3/00*; F16B *7/08, 9/00*

U.S. Cl. 403—232.1 **12 Claims**



1. A sheetmetal slope and skew hanger connector in a frame building structure comprising:

(a) a wood supporting member having a generally planar front face;

(b) a wood supported member having a generally planar end face, generally planar side portions intersecting said end face, and a bottom edge face;

(c) an elongated back plate member adapted for registration with said front face of said wood supporting member;

(d) first and second side support members integrally attached to opposite sides of said back plate, formed with a plurality of fastener openings and adapted for connection to said face of said supporting member;

(e) a seat base integrally connected to an end of said back plate along a seat bend line and extending angularly therefrom a selected distance and adapted for registration with said bottom edge face of said wood supported member;

(f) a pair of seat sides integrally connected to opposite sides of said seat base and extending generally parallel to each other and angularly to said seat base and each formed with fastener openings at a selected distance from said seat bend line and from said seat base and adapted for connection to said side portions of said wood supported member; and

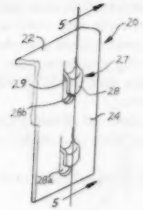
(g) a pair of tab members spaced from said side support members and integrally connected to opposite sides of said back plate and extending generally parallel to each other and angularly to said seat base and each formed with fastener openings at selected distances from said back plate and adapted for connection to said side portions of said wood supported member.

4,423,978

SHELVING CONSTRUCTION

Gabriel Tiegelmann, Aurora, Ill., assignor to White Consolidated Industries, Inc., Cleveland, Ohio

Filed Nov. 2, 1981, Ser. No. 317,477
Int. Cl.³ B25G 3/00; F16B 9/00; F16L 41/00
U.S. Cl. 403—254 7 Claims



1. A structure for interconnecting elements of a metal shelving assembly comprising:

a vertically extending slot provided by one of the elements, the slot having an arcuate edge along its lower end; and

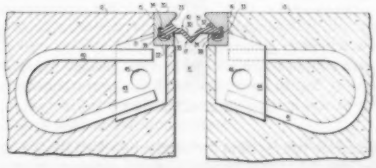
a punch press-formed, tablike projection provided as an integral portion of another of the elements, the projection being received by and retained in the slot, the projection including an arcuate load-bearing surface resting on the arcuate edge of the slot in contiguous relationship at all interface points between the arcuate edge and the arcuate load-bearing surface.

4,423,979

EXPANSION JOINT SEALING STRUCTURES

Delmont D. Brown, North Baltimore, Ohio, assignor to The D. S. Brown Company, North Baltimore, Ohio

Continuation-in-part of Ser. No. 76,908, Sep. 19, 1979, Pat. No. 4,290,713. This application Jul. 21, 1981, Ser. No. 285,476
Int. Cl.³ E01C 11/02
U.S. Cl. 404—69 4 Claims



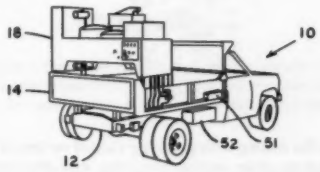
1. An expansion joint between adjacent pavement sections with an elastomer seal comprising a first metal frame mounted on and extending along one side of said joint, an opposing second metal frame mounted on and extending along the other side of said joint, and an elastomer sealing strip spanning the joint and having longitudinal edges each extending in an outward and downward direction and having a neck portion with a distortable point of substantially triangular cross section, by means of which said longitudinal edge is seated, in interlocking relationship in its respective frame, each said frame being of solid extruded metal forming a front wall, facing the opposite frame, which includes an upper and lower segment with slanted surfaces defining an outwardly and downwardly extending slot widening into a cavity, said slanted surface of the upper segment terminating in a shoulder defining part of said cavity, and the upper surface of the neck portion of said elastomer strip having an elongated neck surface which is slanted the same as the slanted surface of the upper segment and which, upon insertion of the distortable point of the longitudinal edge of the strip into its respective frame engages the slanted surface of the upper segment, in cooperation with said lower segment, while the base of said triangular point bears against said shoulder so as to prohibit withdrawal therefrom and to hold said elastomer strip securely in position.

4,423,980

TRUCK-MOUNTED APPARATUS FOR REPAIRING ASPHALT

Denny F. Warnock, 6100 W. Stonehedge, Greenfield, Wis. 53220

Filed Apr. 23, 1981, Ser. No. 256,900
Int. Cl.³ E01C 19/00
U.S. Cl. 404—83 7 Claims



6. In combination:

a vehicle having a chassis;

an engine on said chassis for propelling said vehicle;

a fluid cooling system on said chassis for said engine;

first and second hydraulic pumps on said chassis driven by said engine;

a hydraulic fluid reservoir on said chassis for supplying hydraulic fluid to said hydraulic pumps;

a dump box tiltably mounted on said chassis;

a hydraulically operable tilt cylinder connected between said chassis and said dump box;

apparatus detachably mounted on said dump box and including:

first and second hydraulic motors supplied and driven by said first and second hydraulic pumps, respectively;

an air compressor driven by said first hydraulic motor;

a compressed air tank supplied by said air compressor;

a pneumatic circuit supplied by said compressed air tank and operable to supply compressed air to drive a pneumatically powered tool;

an emulsion tank;

an emulsion pump driven by said second hydraulic motor for expelling emulsion from said emulsion tank;

heater means arranged to heat said emulsion tank and said second hydraulic motor;

a hydraulic circuit supplied by said first hydraulic pump and operable to supply pressurized fluid to drive a hydraulically powered tool and to operate said tilt cylinder;

hydraulic fluid supply lines connected between said hydraulic pumps and said hydraulic motors;

a hydraulic fluid return line connected between said hydraulic motors and said reservoir;

fluid coolant supply and return lines connected between said fluid cooling system and said heater means;

and detachable connector means in said hydraulic fluid supply and return lines and in said fluid coolant supply and return lines to facilitate detachment and connection between said apparatus and said dump box.

4,423,981

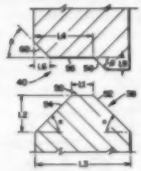
CONCRETE LINING OF DRILLED SHAFT

Hans Nilberg, Apple Valley, Calif., assignor to Santa Fe International Corporation, Orange, Calif.

Filed Jul. 22, 1981, Ser. No. 285,815
Int. Cl.³ E21D 5/01
U.S. Cl. 405—133 21 Claims

1. A liner for a bore hole shaft formed of a plurality of

cylindrical concrete segments, each said concrete segment comprising: a top portion with an approximately V-shaped cross-sectional area with inner and outer slanted sections and a small flat top section; and a bottom portion having a channel area partially corresponding to the shape of the top portion so that said segment can be stacked on top of a similarly shaped segment, said channel area of said bottom portion having an asymmetrical cross-section with a flat section for mating with said flat section of said top portion, a slanted section along its



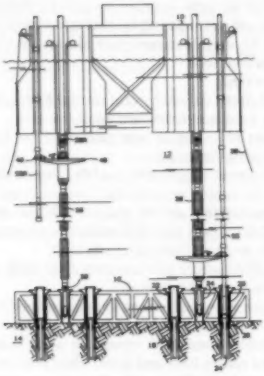
inner edge for mating with said inner slanted section of said top portion and an outer section extending in a direction away from said outer slanted section of said top portion so that when said bottom portion of one of said concrete segments is lowered onto said top portion of another of said concrete segments a sufficient uneven turbulence is created between the two said concrete segments for flushing surfaces of said portions free of any particles and flushing such particles towards the outer extremity of said segments.

4,423,982

METHOD AND EQUIPMENT FOR RUNNING RISER PIPES FOR MOORING OFFSHORE FLOATING PLATFORMS

Hubart B. Zaremba, London, England, assignor to Standard Oil Company (Indiana), Chicago, Ill.

Filed Dec. 8, 1980, Ser. No. 214,596
Int. Cl.³ E02B *17/02*; E21B *15/02*
U.S. Cl. 405—195 **3 Claims**



2. An anchoring and riser guidance system for a floating platform having a rectangular shape in which there is a circular pattern of riser pipe passages in each corner of said platform which comprises:

a template positioned on the sea floor beneath said platform and having approximately the same shape as said platform, there being a circular pattern of well slots in each corner of said template corresponding to the circular pattern of vertical passages for said riser pipes in said platform;

a center sleeve in each corner of said template located at the center of said circular pattern of well slots, there being a keyed anchor slot in said center sleeve;

a vertical mooring guidance riser connected between said keyed anchor slot and a position on said platform corresponding to the center of said circular pattern of vertical riser pipe openings, the exterior of said vertical mooring guidance riser being provided with oriented guiding splines, said vertical mooring guidance riser being maintained under tension by surplus buoyancy in said platform;

a guide frame mounted over said vertical mooring guidance riser and having internal splines complementing the splines of said vertical mooring guidance riser;

means to lower and raise said guide frame along said vertical mooring guidance riser;

a guide clamp on the outer end of said guide frame for guiding a permanent riser pipe from said platform to one of said well slots;

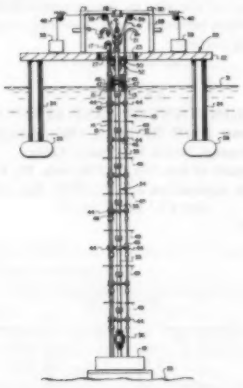
mooring lines extending from said platform laterally to anchors in the ocean floor.

4,423,983

MARINE RISER SYSTEM

Nickiforos G. Dadiras, Dallas, and Ronald D. Baugh, Lewisville, both of Tex., assignors to Sedco-Hamilton Production Services, Dallas, Tex.

Filed Aug. 14, 1981, Ser. No. 292,957
Int. Cl.³ E21B *33/035*
U.S. Cl. 405—195 **18 Claims**



1. A marine riser system for conducting well fluids between a subsea manifold and a floating platform structure comprising:

a generally vertical support column extending between said manifold and said platform;

tensioning means interconnecting said support column and said platform for maintaining a predetermined tension on said support column during movement of said platform with respect to said support column;

a plurality of riser conduits extending from said manifold generally vertically upward toward said platform; and

means interconnecting said support column and said riser conduits for tensioning said riser conduits to hold said riser conduits in place with respect to said support column during movement of said platform comprising a plurality of arms extending from said support column and pivotally connected to said support column, said arms including means engageable with cooperating means on said riser conduits for supporting said riser conduits vertically with respect to said support column; and

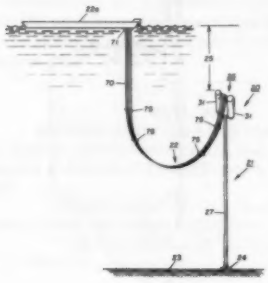
hydraulic actuator means urging said riser conduits generally vertically upward with a predetermined biasing force for tensioning said riser conduits with respect to said support column.

4,423,984

MARINE COMPLIANT RISER SYSTEM

Narayana N. Panicker, Grand Prairie, Tex.; Larry L. Gentry, Sunnyvale, and Herbert H. Moss, Cupertino, both of Calif., assignors to Mobil Oil Corporation, New York, N.Y.

Continuation of Ser. No. 220,890, Dec. 19, 1980, abandoned.
This application Jun. 27, 1983, Ser. No. 507,907
Int. Cl.³ E21B *43/01*
U.S. Cl. 405—195 **3 Claims**



1. In a marine compliant riser system wherein a catenary flexible flowline bundle is connected between a surface facility and a submerged lower riser section, the improvement which comprises:

said lower riser section including a vertical casing, and a plurality of rigid flowlines attached to said casing and extending from a marine floor base to a submerged buoy section located beneath the marine surface;

a yoke assembly mounted on the buoy section having means for supporting the flexible flowlines in a spaced linear array;

a plurality of inverted U-shaped rigid connection means each being connected at one end thereof to a respective one of said rigid flowlines, and the other end thereof extending downwardly above said yoke assembly in a linear array; and

said flexible flowline bundle being connected at its upper end to said surface facility and extending downwardly in a catenary manner, each of said flexible flowlines extending upwardly through said support means of said yoke assembly and being connected to a respective one of said U-shaped rigid connection means;

whereby the terminal portion of each of said flexible flowlines is maintained in a substantial normal catenary departure angle with respect to a respective one of said U-shaped rigid connection means.

4,423,985

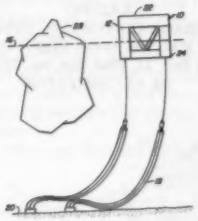
TENSION LEG PLATFORM WITH HORIZONTAL MOVEMENT CAPABILITY

Paul M. Aagaard, Fullerton, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Sep. 14, 1981, Ser. No. 301,665
Int. Cl.³ B63B *35/44*
U.S. Cl. 405—224 **8 Claims**

1. An improved tension leg platform having a floating buoyant structure anchored to the sea floor by a plurality of flexible tendons, the improvement comprising:

means for connecting flexible lines between said structure and said tendons and adjusting the length of said flexible



lines to permit the structure to move substantially in a horizontal plane from the original anchor site; and

means for moving said structure in a horizontal plane.

4,423,986

METHOD AND INSTALLATION APPARATUS FOR ROCK BOLTING

Bo T. Skogberg, Handen, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden

Filed Sep. 4, 1981, Ser. No. 299,642
Claims priority, application Sweden, Sep. 8, 1980, 8006252
Int. Cl.³ E21D *20/00*
U.S. Cl. 405—259 **20 Claims**

1. Method of rock bolting by using a fluid expansible tube-formed rock bolt (**10**) having an internal elongated pressure fluid receiving chamber that is closed at both of its ends but has a fluid inlet (**18**) at one end thereof which is in fluid communication with the interior of said chamber, said rock bolt (**10**) being provided with a cylindrical sleeve (**13**) on said one end and a supply hole through said sleeve to the interior of said chamber of said rock bolt to provide said fluid inlet (**18**), said chamber being pressurized to expand the tube formed rock bolt in a borehole, characterized by the steps of:

inserting said one end of said rock bolt (**10**) in a bolt socket (**28**) of a holder (**21**) so that a fluid conduit (**40, 45, 47**) of said holder is in fluid communication with said fluid inlet (**18**) of said rock bolt;

moving said holder (**21**) to insert said rock bolt (**10**) into a borehole;

supplying high pressure liquid through said fluid conduit (**40, 45, 47**) of said holder (**21**) and through said fluid inlet (**18**) to said chamber of said rock bolt to plastically deform said rock bolt (**10**) so as to be expanded and anchored in the borehole;

sealing off said socket (**28**) of said holder (**21**) against said sleeve (**13**) axially on both sides of said fluid inlet (**18**) at least during supplying said high pressure liquid to said fluid inlet (**18**) through said conduit (**40, 45**);

relieving said conduit (**40, 45, 47**) of fluid pressure and thereby relieving said chamber of said rock bolt (**10**) of fluid pressure; and

removing said holder (21) from said rock bolt, said rock bolt remaining anchored in the borehole.

4,423,987

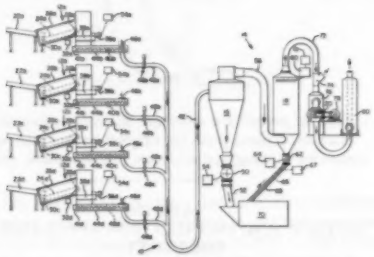
GARBAGE CONVEYING SYSTEM

Lewis R. Powers, P.O. Box 11165, Zephyr Cove, Nev. 89448

Filed Dec. 12, 1980, Ser. No. 215,604

Int. Cl.³ B65G *53/48*

U.S. Cl. 406—56 **11 Claims**



1. A garbage conveying system having upstream and downstream ends comprising:

a plurality of remote terminals for receiving garbage, said remote terminals each including air intake means;

remote terminal valve means disposed in the vicinity of said remote terminals, downstream of said air intake means of each said remote terminal, for selectively opening one remote terminal and its air intake means at a time to receive garbage and to permit air to flow therethrough and into the system;

separator means disposed downstream of said remote terminals for separating the garbage from the air flow, said separator means having garbage valve means at a lower end thereof for continuously removing garbage while minimizing the flow of air therethrough, and air discharge means at an upper end thereof;

suction blower means disposed in the vicinity of the downstream end of the system for creating a suction draft through a selected one of said remote terminals and for drawing air through said separator means; and

screw-type auger means immediately upstream of each said air intake means for conveying garbage towards said separator means;

said air intake means of each said remote terminal comprising the sole air intakes upstream of said separator means;

each said valve means completely sealing off its associated remote terminal when such terminal is not in use to isolate said terminal from any noxious odors in the system.

4,423,988

MANURE HANDLING UNIT

Camille Cote, 5, Premiere Ave., P.O. Box 8, Warwick, Quebec, Canada J0A 1M0

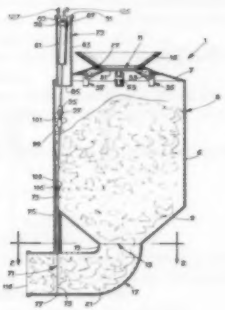
Filed May 26, 1981, Ser. No. 266,637

Int. Cl.³ B65G *53/40*

U.S. Cl. 406—125 **5 Claims**

1. In a compact, self-contained manure handling unit of the type including a tank for holding manure, said tank having a top wall provided with a manure inlet and a bottom wall provided with a manure outlet, a conduit section connected to the tank and leading from the outlet, said conduit section including an elbow extending downwardly from the manure outlet of the tank and laterally outwardly therefrom, inlet valve means mounted within the tank for opening or closing the manure inlet, inlet operating means mounted within the tank for operating the inlet valve means, outlet valve means for opening or closing the conduit section, outlet operating means for operating the outlet valve means, and means for introducing compressed air into the tank to push manure out through the conduit when the inlet is closed and the outlet is opened, the improvement comprising:

(a) the outlet valve means includes an outlet closure plate slidably mounted in a narrow sleeve extending transversely between the bottom wall of the tank and the elbow, said closure plate being movable through the sleeve between a closed position where it extends across the



elbow, and an open position where it is located within the sleeve; and

(b) the outlet operating means includes an actuator located in a housing projecting upwardly from the top wall of the tank in a generally aligned position with respect to the sleeve, and means within the tank for operatively connecting the actuator to the outlet closure plate.

4,423,989

MACHINE TOOL ASSEMBLY WITH ROTATABLE CUTTING TOOL

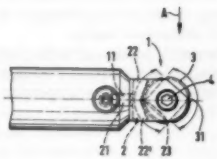
Dieter Kress, Aalen, and Friedrich Häberle, Lauchheim, both of Fed. Rep. of Germany, assignors to Mapal Fabrik für Präzisionswerkzeuge Dr. Kress AG, Aalen, Fed. Rep. of Germany

Filed Jun. 11, 1981, Ser. No. 272,544

Claims priority, application Fed. Rep. of Germany, Jun. 12, 1980, 3022104

Int. Cl.³ B23D *77/06*; B23G *39/00*; B23P *77/06*

U.S. Cl. 408—197 **3 Claims**



1. A machine tool assembly having a generally centrally located longitudinal axis about which said assembly is rotated to perform a cutting operation including a shaft member having a cutter head assembly at an end thereof, said cutter head assembly comprising:

a pair of juxtaposed jaws defining a slot therebetween;

a rotatable cutter plate mounted in said slot between said jaws, said cutter plate including transverse groove means provided at the periphery thereof;

a clamping bolt extending through said cutter plate having a head abutting against an annular shoulder of a bore of one of said jaws and threads engaging into the other of said jaws;

a T-shaped insert having a pair of arms and a leg inserted into said slot;

an axial bore formed in said shaft member receiving therein said leg of said T-shaped insert with said arms thereof being located in said slot; and

a pair of axially symmetrically constructed slanted abutment surfaces formed on said arms of said T-shaped insert and a protuberance formed on said arms of said T-shaped insert arranged to engage into said transverse groove means of said cutter plate to rotatively lock said cutter place in place;

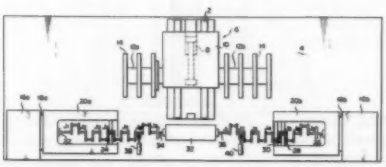
said protuberance and said transverse groove means receiving said protuberance being arranged laterally offset so as to be located completely outside of the path of said longitudinal axis.

4,423,990

CRANKSHAFT MILLING MACHINE

Kazuo Kodama, and Yoshihiro Tsukiji, both of Komatsu, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed Mar. 20, 1980, Ser. No. 132,086
Claims priority, application Japan, Mar. 30, 1979, 54-37027
Int. Cl.³ B23B *5/18;* B23C *3/06*
U.S. Cl. 409—132 **4 Claims**



4. A process for milling a crankshaft by using a crankshaft milling machine including a pair of headstocks each having a chuck means rotatably mounted therein, a center stock, and a milling unit including an arbor mounting means, and a pair of arbor means mounted to and projecting from said arbor mounting means, each of said arbor means having a plurality of disk cutters, total number of which corresponds to the number of main bearings of the crankshaft to be milled, said pair of headstocks and said center stock being aligned along a line; said process comprising the steps of:

(a) clamping the crankshaft by one of said chuck means while supporting opposite ends thereof by said one chuck means and said center stock;

(b) simultaneously milling a plurality of main bearings of the crankshaft which are projecting from said one chuck means by the disk cutters mounted on one of said arbor means while driving the crankshaft by said one chuck means;

(c) unclamping the crankshaft from said one chuck means upon completion of the milling of the step (b);

(d) clamping the crankshaft by the other chuck means while supporting opposite ends thereof by the other chuck means and said center stock; and

(e) simultaneously milling a plurality of remaining unmilled main bearings of the crankshaft which are projecting from said other chuck means by the disk cutters mounted on the other arbor means while driving the crankshaft by said other chuck means.

4,423,991

CAM ACTIVATED PLANETARY TURNING MACHINE

Ralph Derr, Jr., Downingtown, Pa., assignor to Gulf & Western Manufacturing Company, Southfield, Mich.

Filed Nov. 23, 1981, Ser. No. 324,311
Int. Cl.³ B21D *51/54*
U.S. Cl. 409—200 **6 Claims**

1. An apparatus for milling a workpiece, comprising:

a housing assembly;

a first sleeve having an eccentric bore therein rotatably mounted in said housing assembly;

a second sleeve at least partially positioned within said eccentric bore for rotation within said first sleeve, said second sleeve having an eccentric bore therein;

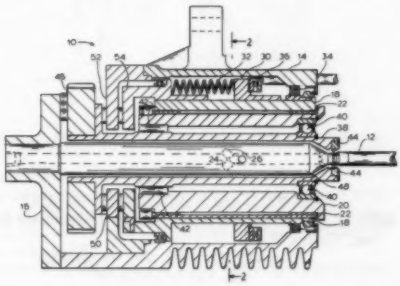
a mandrel at least partially positioned within said eccentric bore within said second sleeve for rotation therein;

means on said housing assembly for rotating said mandrel;

cutting means secured near a first end of said mandrel;

means for rotating said first and second sleeves with respect to each other;

means for rotating said first and second sleeves as a unit;



said means for rotating said first and second sleeves with respect to each other including:

a first slot within said first sleeve, said first slot including a helically disposed portion extending in a first rotational direction with respect to the axis of said first sleeve;

a second slot within said second sleeve, said second slot including a helically disposed portion extending in a second rotational direction with respect to the axis of said second sleeve, said second rotational direction being opposite to said first rotational direction;

a pin passing through both said first and second slots; and

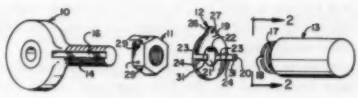
means for moving said pin in a direction parallel to the respective axes of said sleeves.

4,423,992

SELF-RETAINING LOCKING ASSEMBLY FOR THREADED COUPLINGS

Alan E. Ankeny, 5320 Magnolia St., Philadelphia, Pa. 19144

Filed Nov. 21, 1980, Ser. No. 208,904
Int. Cl.³ F16B *39/282*
U.S. Cl. 411—223 **1 Claim**



1. A self-retaining locking assembly for a threaded coupling comprising, in combination:

first rod means externally threaded at one end having a keyway along the threaded length thereof, said first rod means including a free end;

second rod means internally threaded at one end and threadedly engaged to and encompassing said free end of said first rod means, and having a continuous groove about the circumference of said one end and continuous radial slots on the face of said one end extending from the internal threads to the outer circumference;

locking means slidable along the threaded length of said first rod means including a flat annular base, a radially inwardly extending lug from a central aperture of said base,

and radial bosses on one face of said base simultaneously mating with said keyway and said slots respectively, and further including a resilient clip means axially extending from said one face of said base and terminating in detent means releasably engaging said groove when said lug and bosses are fully registered with said keyway and said slots, said locking means having a smooth planar surface on the exposed surface thereof; and

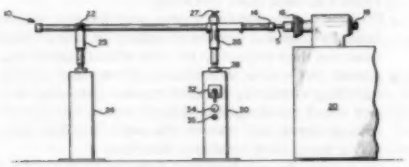
a jam nut threadedly engaging said first rod means for engaging the locking means and reducing the thread clearance of said coupling.

4,423,993

RETRACTABLE BAR STOCK FEEDER

Brian M. Eaton, Elmira, N.Y., assignor to Hardinge Brothers, Inc., Elmira, N.Y.

Filed Oct. 22, 1981, Ser. No. 313,808
Int. Cl.³ B23B *13/00*
U.S. Cl. 414—17 **10 Claims**



1. A retractable bar stock feeder, comprising:

(a) a cylindrical feeder tube assembly mounted on a carrier standard base and containing a retractable plunger assembly having an outer diameter slightly less than the inner diameter of the feeder tube assembly,

(b) A pneumatic pressure path for receiving air pressure or vacuum and conveying it to the rear of the plunger assembly within and at the rear of the cylindrical feeder tube assembly,

(c) a pneumatic pressure source,

(d) selective valve means connected to the pressure source and having a first and a second pressure outlet line for selectively supplying pneumatic pressure to one or the other outlet lines,

(e) automatic valve means having a pressure conduit with its inlet connected to the first pressure outlet line of the selective valve means, and its outlet connected to the pneumatic pressure path for supplying air pressure to the retractable plunger assembly when the bar stock is to be advanced,

(f) positive pressure conversion means connectable with the second pressure outlet line of the selective valve means for receiving positive pressure and producing a vacuum at a vacuum port,

(g) a vacuum connecting line connected between the vacuum port and a second conduit of the automatic valve means for applying a vacuum to the pneumatic path, and

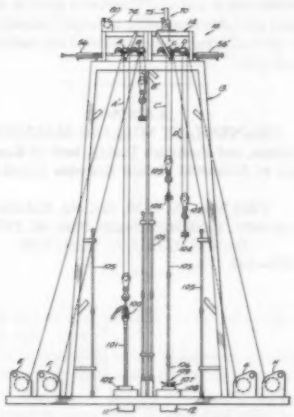
(h) control means connected to the automatic valve means for controlling its operation so as to apply either positive pressure or vacuum to the pneumatic path depending upon the position of the selective valve means.

4,423,994

DRILLING RIG EQUIPPED WITH PAIRS OF BLOCK AND TACKLE SYSTEMS

Corby J. Schefers, 1112 B Chestnut St., Burbank, Calif. 91506, and Louis D. Barber, 1156 Justin Ave., Glendale, both of Calif. 91201

Filed Oct. 26, 1981, Ser. No. 314,749
Int. Cl.³ E21B *19/00*
U.S. Cl. 414—22 **34 Claims**



1. That improvement in a drilling rig having a tower equipped at its top with equipment support means which comprises:

a pair of spaced apart cranks mounted on stationary support means for pivotal movement solely in respective coplanar arcs overlying a horizontal plane through the pivot axes of said cranks;

a separate block and tackle means having the crown blocks thereof journalled on a respective crank pin of said cranks; and

power means operatively connected to said cranks for pivoting the same in the same direction in unison through respective arcs overlying said horizontal plane and between first and second operating positions of said block and tackle means located on the opposite sides of a respective vertical plane through the pivot axis of a respective one of said cranks.

4,423,995

ARRANGEMENT FOR AUTOMATIC CHANGEOVER BETWEEN REAM AND SKID LOADING IN A CONTINUOUS SHEETER

Arthur T. Karis, Lenox, Mass., assignor to Beloit Corporation, Beloit, Wis.

Filed Jun. 17, 1981, Ser. No. 274,638
Int. Cl.³ B65H *31/22, 31/24*
U.S. Cl. 414—43 **22 Claims**

18. Apparatus for automatically changing over a sheeting machine between a skid loading operation for stacking sheets in a large-size pile onto a pallet, and a separate ream collecting operation for stacking sheets in a small-size pile onto a table top comprising:

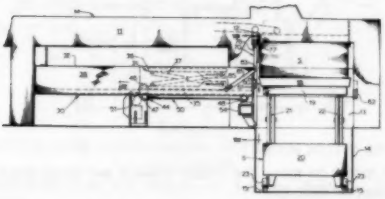
a discharge conveyor means for piling a seriatim flow of sheets into a collection area,

guidetrack means extending transversely through said collection area,

a pair of skid load lift table means carrying pallets mounted for concurrent respective movement along said guidetrack means into and off to a respective opposed side of said collection area during skid loading,

a ream collection lift table means having said table top mounted for lateral movement between a stowed position beneath said discharge conveyor means during skid loading and an operational position in said collection area during ream collecting, and

means for effecting the lateral outfeed of said small-size pile from the ream lift table means,



means for completely disengaging and removing said at least one skid load lift table means from said collection area during ream collecting, and

means for completely disengaging and putting said ream lift table means in said stowed position during skid loading.

4,423,996

APPARATUS FOR HANDLING ROD-LIKE ARTICLES

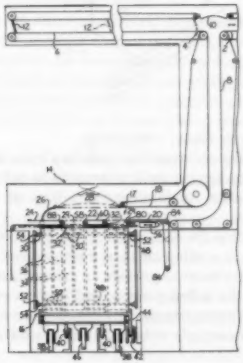
Barry G. Applegate, and Stanley V. Starkey, both of London, England, assignors to Molins Limited, London, England

Filed Oct. 10, 1980, Ser. No. 195,950

Claims priority, application United Kingdom, Oct. 10, 1979, 7935122

Int. Cl.³ B65G 11/33, 47/52

U.S. Cl. 414—391 26 Claims



1. A conveyor system for rod-like articles comprising conveyor means for conveying rod-like articles in a direction transverse to their lengths, means for transferring articles to or from the conveyor means at different locations, said transferring means including means forming a gap in said conveyor means defining a transfer path for articles moving in stack formation in a direction transverse to their lengths, and switching means for closing a transfer path at one location and opening a transfer path at another location by moving said gap in the conveyance direction of said conveyor means to switch transfer of articles from one location to another location.

4,423,997

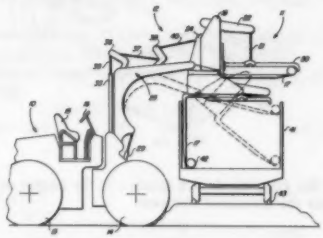
GRAPPLE MECHANISM

Walter B. Pemberton, 682 Gladwin Ave., Fern Park, Fla. 32703

Filed Mar. 15, 1982, Ser. No. 357,893

Int. Cl.³ E02F 3/70

U.S. Cl. 414—697 10 Claims



1. A grapple (11) operating mechanism (12) comprising in combination:

a vehicle (10);

a boom (25) having a pair of generally L-shaped boom members (26) having cross brace members (44, 45) therebetween and having one end portion rotatably attached to said vehicle (10);

grapple (11) rotatably attached to the other end of said boom (25);

a boom actuating mechanism (29) connected between said vehicle (10) and said boom (25) for moving said boom (25) relative to said vehicle (10); and

grapple actuating means for rotating said grapple (11) on said boom (25), said grapple actuating means having an actuating member (33) connected to first arm means (36) attached to said boom (25), a first linkage (37) connecting said first arm means (36) to a second arm means (38) and a second linkage (40) connecting said second arm means (38) to said grapple (11), whereby actuating said grapple actuating means will rotate said grapple (11) on said boom (25), and said first arm means is a plurality of arms (36) rotatably attached to a plurality of first arm supporting brackets (46) on said cross brace member (45) and moved by said actuating member (33) and said cross brace member (45) having a plurality of second arm supporting brackets (47) attached thereto for supporting said second arm means (38), said second arm means also including a plurality of arms (38) rotatably attached to said second arm supporting brackets (47) attached to said cross brace member (45) of said boom (25).

4,423,998

GRIPPING DEVICE

Hajimu Inaba, Hino, and Shinsuke Sakakibara, Kunitachi, both of Japan, assignors to Fujitsu Fanuc Ltd., Tokyo, Japan

Filed Jul. 14, 1981, Ser. No. 283,184

Claims priority, application Japan, Jul. 24, 1980, 55/101518

Int. Cl.³ B66C 1/00

U.S. Cl. 414—730 9 Claims

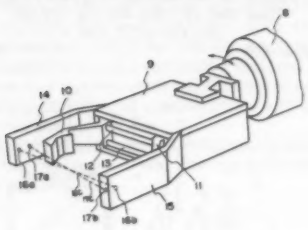
1. An improved gripping device of the type having fingers for gripping an object, wherein the improvement comprises:

a plurality of light-emitting members, provided on the gripping device, for generating a plurality of light beams that intersect at predetermined angles;

a plurality of light-receiving members, provided on the gripping device, for receiving the plurality of light beams and for delivering output signals of one level when the light beams and received and of another level when the light beams are intercepted; and

robot control means for receiving said output signals for measuring the distance to the position of the object on the basis of the timing at which the plurality of light beams are

intercepted by the object as the gripping device moves relative to the object, and for moving the gripping center



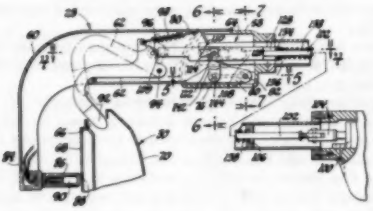
of the gripping device relative to the center of the object over the measured distance.

4,423,999

MECHANICAL HAND FOR A DOOR-OPENER

Mitchell Choly, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Sep. 14, 1981, Ser. No. 302,105
Int. Cl.³ B25J *5/02*
U.S. Cl. 414—744 A **3 Claims**



1. A mechanical hand for use with a door-opener which serves to open and close a vehicle door having an inner panel and an outer panel which together define a window pane cavity, said mechanical hand comprising a housing adapted to be connected to said door-opener; a pull member having a contact surface formed thereon; means pivotally connecting said pull member to said housing for movement between a raised position wherein said contact surface of said pull member is located above said inner panel, and a lowered position wherein said contact surface engages said inner panel; a push member having a projection formed thereon; means pivotally connecting said push member to said pull member so as to permit said projection to be inserted into said window pane cavity when said pull member is located in said lowered position; and an actuator mechanism operatively connected to said pull member and said push member for moving said pull member from said raised position to said lowered position and for moving said projection of said push member into said window pane cavity whereby said vehicle door is capable of being opened and closed by said door-opener.

4,424,000

BILLET TURNER

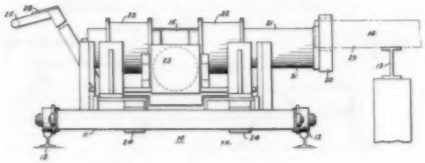
Justin F. Sucato, West Seneca, N.Y., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed Jan. 4, 1982, Ser. No. 336,793
Int. Cl.³ B21B *39/20*
U.S. Cl. 414—780 **5 Claims**

1. Apparatus for rotating an elongated workpiece about an edge when located on a support bed, comprising:

(a) a carriage, mounted on tracks, for movement alongside the support bed,

(b) a free floating turning unit, mounted on the carriage, said turning unit having a control end and a front end and having an axis transverse to the movement of the carriage, with a cradle having an opening to engage the end of the elongated workpiece mounted on one end of the turning unit and having means to rotate the turning unit and cradle about the turning unit axis,



(c) means to move the cradle toward and away from the support bed, and

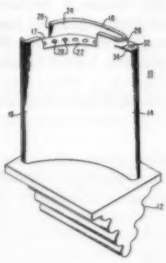
(d) a first means to adjust the control end vertically and a second means to adjust the front end vertically.

4,424,001

TIP STRUCTURE FOR COOLED TURBINE ROTOR BLADE

William E. North, Concord Township, Delaware County, and Augustine C. McClay, Ridley Park, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 4, 1981, Ser. No. 327,541
Int. Cl.³ F01D *5/18, 5/20*
U.S. Cl. 416—92 **3 Claims**



1. A turbine rotor blade, comprising:

a root portion for securing the blade in a rotor disc;

an airfoil portion having walls contoured to define concave and convex sides for intercepting a flow of hot motive gases;

air channels within the root and airfoil portions for supporting the flow of cooling air therethrough; and

a tip portion structured to provide an exhaust path for cooling air from the airfoil portion, said tip portion having:

a tip sidewall extending radially outward from said airfoil portion substantially to bound a radially outward facing tip cavity,

said tip sidewall generally having an edge portion extending about the airfoil trailing edge and respective portions generally extending from said sidewall edge portion along said airfoil concave and convex sides toward the airfoil leading edge, and

a closing sidewall portion located short of the airfoil leading edge and extending across said airfoil portion between said convex and concave sidewall portions,

the base of said tip cavity formed by a blade tip surface having therein apertures for venting cooling air from the airfoil portion into said cavity; and

a leading edge tip surface located radially inward from the

outermost extent of said tip cavity sidewall and extending from said closing sidewall portion to the airfoil leading edge, said leading edge tip surface having aperture means for venting at least one blade cooling channel near the airfoil leading edge, said leading edge tip surface being too narrow to provide for a sidewall enclosed tip venting cavity without obstructing coolant flow near the airfoil leading edge.

4,424,002

DEVICE FOR CONVERSION BETWEEN FLOW AND ROTATION

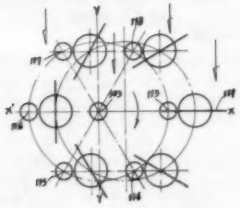
Osamu Nishiyama, 3-9, Nagate-cho 5-chome, Nada-ku, Kobe, Japan

Filed Mar. 31, 1981, Ser. No. 249,460

Claims priority, application Japan, Apr. 3, 1980, 55-043843; Nov. 7, 1980, 55-157215

Int. Cl.³ F03D *3/06*

U.S. Cl. 416—111 **10 Claims**



1. A device for conversion between flow energy flowing in a flow direction and rotational energy, comprising:

a fixed revolution center shaft;

two opposing discs respectively rotatably mounted at their centers on opposite ends of the revolution center shaft;

a vane assembly, the vane assembly including:

first and second intermediate shafts axially aligned along an intermediate axis of rotation, rotatably mounted at corresponding locations on the peripheral portions of the two discs,

first and second arms respectively fixed to the first and second intermediate shafts and extending in only one corresponding direction therefrom,

only one self-rotation shaft rotatably mounted to and extending between the first and second arms a first predetermined distance from the first and second intermediate shafts, and

only one vane fixed to the self-rotation shaft; and

first transmitting means for continuously converting full turns of the discs on the revolution center shaft to corresponding full turns of the first and second intermediate shafts in such a manner that a line passing through the intermediate axis of rotation and the self-rotation shaft is always perpendicular to the flow direction, whereby the vane revolves along an eccentric circular path about the revolution center shaft, and second transmitting means for continuously converting full turns of the intermediate shafts on the discs to corresponding half turns of the vane on the self-rotation shaft in such a manner that the vane is oriented perpendicular to the flow direction when the self-rotation shaft is furthest from the first center shaft and parallel to the flow direction when the self-rotation shaft is closest to the center shaft, whereby the vane maximally collects energy from the flow energy.

4,424,003

IMPROVED CONNECTION STRUCTURE FOR JOINING CERAMIC AND METALLIC PARTS OF A TURBINE SHAFT

Helmut Brobeck, Hessheim, Fed. Rep. of Germany, assignor to AG Kühnle, Kopp & Kausch, Frankenthal, Fed. Rep. of Germany

Continuation of Ser. No. 913,494, Jun. 7, 1978, abandoned. This application Feb. 5, 1981, Ser. No. 231,753

Claims priority, application Fed. Rep. of Germany, Jun. 27, 1977, 2728823

Int. Cl.³ F01D *5/28, 5/34*

U.S. Cl. 416—241 B **13 Claims**

1. An improved turbine wheel structure comprised of a main non-metallic turbine wheel body, a non-metallic shaft rigidly secured to and extending away from said turbine wheel body, a metallic shaft having means defining a hollow interior bore extending inwardly from one end along at least part of the length of said metallic shaft, said non-metallic shaft having the hollow interior portion of said metallic shaft secured thereover so that said hollow interior bore extends along and in direct contact with the entire length of said non-metallic shaft, said metallic shaft having shaped sealing and bearing elements on the exterior thereof for sealing and supporting the turbine wheel.

4,424,004

END CAP FOR A ROTOR SHAFT OF A ROTARY MACHINE

David J. Hiskes, Vernon, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Nov. 9, 1981, Ser. No. 319,861

Int. Cl.³ F01D *11/00*

U.S. Cl. 416—244 A **13 Claims**

1. A method of installing an end cap formed of a cover and at least two rotatable dogs to the rotor shaft of an axial flow gas turbine engine, the shaft having an axis extending in an axial direction, a first circumferentially continuous side which extends radially inwardly from the rotor shaft and which faces in a first, generally axial direction and further having a second side facing in a direction which is opposite to said first direction, comprising the steps of:

inserting at least one lock means through the cover for each dog;

attaching a rotatable dog to the lock means;

aligning the cover with said first circumferentially continuous side;

moving the cover to the first side;

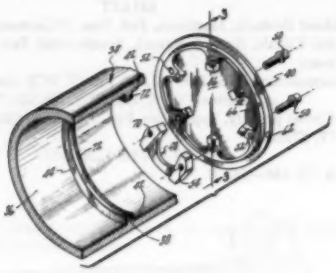
rotating each dog into an insertion position such that each dog faces only the cover;

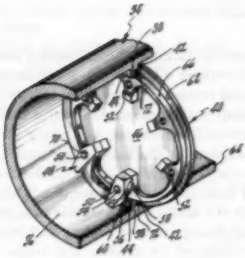
inserting each dog axially beyond the second side;

rotating each dog into an assembly position by rotating the lock means at the exterior of the cover such that the dog faces the cover and the second side of the shaft and the cover faces the dog and the first side of the shaft; and,

applying oppositely directed axial forces through the lock

means against the dog and against the cover such that the dog engages the second side of the shaft and the cover is





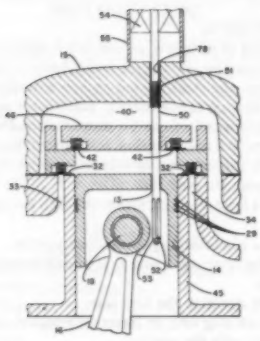
urged against the first, circumferentially continuous side of the shaft.

4,424,005

METHOD AND APPARATUS FOR CONTROLLING THE CAPACITY OF A RECIPROCATING COMPRESSOR

John D. Manning, Liverpool, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Oct. 26, 1981, Ser. No. 314,350
Int. Cl.³ F04B 49/00, 23/00, 39/10
U.S. Cl. 417—53 8 Claims



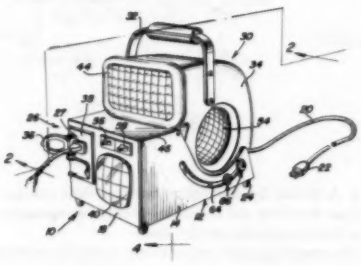
1. A variable displacement compressor which comprises:
a cylinder defining a fixed volume space;
a piston mounted for reciprocating movement within the cylinder for compressing a gas, said piston defining a bypass opening extending therethrough;
means for reciprocating the piston within the cylinder;
valve means for controlling the flow of gas into and out of the cylinder;
a bypass piston sized to extend through and block the bypass opening to prevent the flow of gas therethrough, said bypass piston including a portion of reduced cross-sectional area such that when the reduced portion of the bypass piston is located within the bypass opening gas may flow therethrough; and
positioning means for placing the bypass piston to either block flow through the bypass opening or to allow flow through the bypass opening to regulate the capacity of the compressor.

4,424,006

COMBINED POWER DEVICE, LIGHT AND FAN

Joseph M. Armbruster, 2700 N.E. 47th St., Lighthouse Point, Fla. 33064

Filed Dec. 9, 1980, Ser. No. 214,867
Int. Cl.³ F04B 21/00
U.S. Cl. 417—234 3 Claims



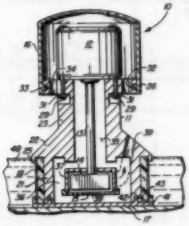
1. A combined portable light, electrical outlet and fan assembly comprising a supporting frame including a generally vertical front panel and side frame members, means stably supporting the frame on a support surface, electrical outlet socket means mounted on said front panel, a light mounted on said front panel for directing a light beam forwardly of the assembly, a blower housing mounted on said side frame members, a blower mounted in said housing, said blower housing being generally cylindrical in configuration and having a tangential air outlet, a handle attached to said blower housing to enable the assembly to be carried to a desired site of use, an electrical cord and plug adapted to engage with an electrical outlet for supplying electrical energy to the outlet socket means, light and blower, a switch for selectively actuating the blower independent of the light, a switch for actuating the light independently of the blower, said electrical outlet socket means being directly electrically connected with the cord for energization independent of the blower and light, said blower housing having end walls with each end wall including an air inlet, and means connecting the blower housing to the side frame members for pivotal movement of the housing about a horizontal axis generally parallel to the front panel without interference with air entering the air inlets for movement of the air outlet between a horizontal position in which air is directed forwardly of the front panel toward a work area illuminated by the light and a vertical position to enable air to be discharged in a desired direction, said handle being offset from the pivot axis of the blower housing to enable application of rotational torque to the blower housing.

4,424,007

PUMP AND FILTER ASSEMBLY FOR EVAPORATIVE COOLERS

Douglas W. Mehrens, 918 W. Portland, Phoenix, Ariz. 85004, and James F. Kuchar, 5524 E. Cactus, Scottsdale, Ariz. 85254

Filed Oct. 16, 1981, Ser. No. 311,986
Int. Cl.³ F04B *35/04*; F01D *15/08*; B01D *35/02*
U.S. Cl. 417—360 7 Claims



1. A pump assembly for an evaporative cooler comprising:
a housing,
an electrically driven pump motor having a shaft and an attached impeller driven thereby,
said motor, shaft and impeller being mounted in said housing,
said housing comprising a cap for surrounding said motor, a first section for attaching to said cap at one end thereof and enclosing said shaft, and a second section attached at one end to the other end of said first section and forming a chamber around said impeller,
said second section being provided with a plurality of openings spacedly positioned around its periphery for the ingress of water, and
a filter for fitting around the outside periphery of said second section and detachably engaging at one end with said other end of said first section, and
a base detachably connecting to the other end of said second section and enclosing the other end of said filter.

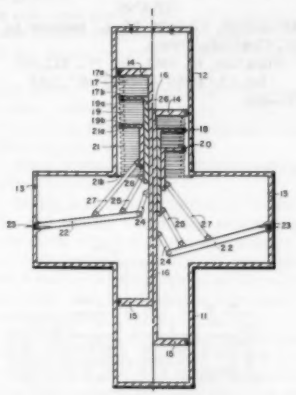
4,424,008

HERMETIC SEAL FOR COMPRESSORS OR THE LIKE

Anton Braun, 6421 Warren Ave., Minneapolis, Minn. 55435

Continuation of Ser. No. 174,201, Jul. 31, 1980, abandoned. This application Jun. 28, 1982, Ser. No. 392,457
Int. Cl.³ F04B *39/04*
U.S. Cl. 417—364 10 Claims

1. A hermetic seal for a compressor or the like having a cylinder with a reciprocable rod therein and power means for moving said rod back and forth a substantial distance along the axis of said cylinder, comprising a bellows surrounding said rod and extending between said rod and said cylinder, said bellows having a plurality of convolutions with one end of the bellows being sealingly connected to said rod and the other end of said bellows being sealingly connected to the periphery of the cylinder, and symmetrical motion transmitting means around said rod and extending between said rod and one or more intermediate portions of said bellows that will positively cause said intermediate portion or portions of said bellows to move when said one end of the bellows moves but at a slower speed or speeds and to a lesser distance from said other end of said bellows, said intermediate portions of said bellows dividing said bellows into two or more bellows sections wherein the relative displacement between the first and



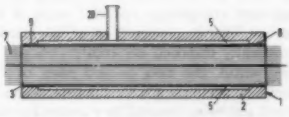
the last convolution of each of said bellows section are unequal.

4,424,009

PERISTALTIC PUMP

Cornelis J. van Os, Emmen, Netherlands, assignor to Noord-Nederlandsche Machinefabriek B.V., Winschoten, Netherlands

Filed Jul. 10, 1980, Ser. No. 167,354
Claims priority, application Netherlands, Jul. 12, 1979, 7905463
Int. Cl.³ F04B *43/10*
U.S. Cl. 417—394 35 Claims

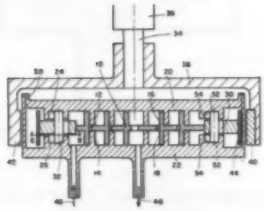


1. A peristaltic pump comprising:
(a) a hollow linear pump housing having opposite ends,
(b) a hose extending linearly in said housing and spaced therefrom along its length, leaving a hollow space surrounding the hose, said housing having a supply opening in one end and a discharge opening in the other end,
(c) the ends of the hose being sealingly connected all around to the edge of the supply opening and the discharge opening of the pump housing, respectively,
(d) the pump housing provided with means for supplying a fluid medium to the hollow space, and for discharging medium therefrom, in order to exert pressure on the outer wall of the hose at desired times to collapse the hose inwardly upon the introduction of fluid medium into the hollow space,
(e) characterized in that the hose has uniform wall thickness and elasticity throughout its length except that adjacent the supply end for the material to be pumped the hose is provided with a weakening.

4,424,010
INVOLUTE SCROLL-TYPE POSITIVE DISPLACEMENT ROTARY FLUID APPARATUS WITH ORBITING GUIDE MEANS

John E. McCullough, Carlisle, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass.

Filed Oct. 19, 1981, Ser. No. 312,745
Int. Cl.³ F04B 17/00; F04C 2/02
U.S. Cl. 417—420 6 Claims



1. A positive displacement scroll-type fluid apparatus comprising:

a fixed scroll having at least one involute wrap;

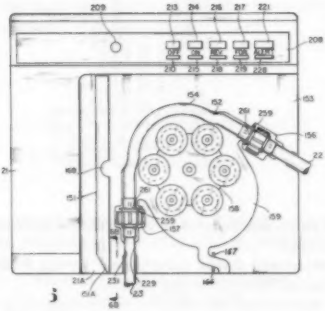
an orbiting scroll having at least one involute wrap in mating engagement with the fixed involute wrap and arrangement to be orbitally driven about an orbital radius relative to the fixed wrap to enable transfer of energy between a fluid confined between the fixed and orbiting wraps and the orbiting scroll;

said orbiting scroll being guided for orbital movement and maintained in a predetermined angular orientation relative to the fixed scroll solely by a rolling contact bearing arrangement comprising opposed pairs of fixed hollow cylindrical bearing surfaces of equal interior diameter concentrically disposed on axially opposite sides of the orbiting scroll, the axes of said pairs of fixed bearing surfaces extending parallel to the orbital axis of the orbiting scroll and being located on a circumference of a circle that is concentric with the axis of orbiting movement of the orbiting scroll; orbiting hollow cylindrical bearing surfaces having diameters equal to the diameters of the fixed bearing surfaces extending axially through and being connected with the orbiting scroll, the axes of said orbiting bearing surfaces extending parallel with the axes of said fixed pairs of bearing surfaces, and lying on a circumference of a circle of equal diameter as the first said circumference; each axis of an orbiting bearing surface being located adjacent to and offset in the same direction from the axis of respective pairs of fixed bearing surfaces by an equal offset distance that is equal to said orbital radius; and an orbiting cylindrical roller bearing element disposed in and extending between each of said pairs of fixed bearing surfaces and through a respective orbiting bearing surface, the roller bearing element having a diameter corresponding to the difference between the diameter of said fixed bearing surfaces and said orbital radius, said rolling contact bearing carrying and reacting substantially all centrifugal radial loads of the orbiting scroll.

4,424,011
PAINTING APPLICATOR WITH REMOTE SUPPLY

Lawrence B. O'Brien; Walter F. Winston, both of Carmel; Edmund L. Abner; Lowell G. Atkinson, both of Indianapolis; H. Richard Roudebush, Greenfield; William L. Buehler, Indianapolis; Jim K. Bergstresser, Indianapolis, and Walker A. Messick, Indianapolis, all of Ind., assignors to Triune Automated Painting Systems, Carmel, Ind.

Filed Dec. 22, 1980, Ser. No. 218,354
Int. Cl.³ F04B 45/08; B43K 5/02
U.S. Cl. 417—477 2 Claims



1. In a painting apparatus, paint mover means comprising:

a pump housing;

a pump in said housing and including a paint pumping tube, a tube support cam, and pressure applying rollers, and motor means for driving said rollers;

said motor means being movable relative to said housing to move said rollers toward and away from said cam, to respectively enable said rollers to press against said pump tube for pumping fluid through said tube, and disable said rollers from entrapping said tube against said cam, and thereby facilitate removal of said tube;

and a pump housing door pivotable about an axis nonparallel to rotational axes of said rollers, and linked to said motor means to move said motor means and provide access to said tube.

4,424,012
IN-LINE FLUID PUMP AND SHUTTLE VALVE THEREFOR

Julius C. Westmoreland, Marina Del Rey, Calif., assignor to Inotek-Westmoreland Venture, Irvine, Calif.

Filed Oct. 9, 1981, Ser. No. 310,102
Int. Cl.³ F04B 7/02; F01B 31/00
U.S. Cl. 417—507 5 Claims

1. A fluid pump comprising:

first and second coaxially arranged hollow cylinders forming an annular chamber and having end walls enclosing said chamber;

an annular piston received within and dimensioned for fitting sliding receipt along the annular chamber;

at least one drive rod connected to the annular piston and extending through an opening;

first and second ports in the inner cylinder wall located respectively at opposite ends of the chamber;

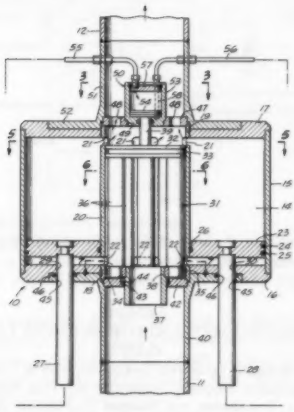
inlet means interconnecting a source of pressurized fluid with one end of the inner hollow cylinder;

outlet means interconnecting with the other end of the inner hollow cylinder;

reciprocating drive means connected to the drive rod; and

valving means located within the inner cylinder synchronized with the reciprocating movement of the drive rod to interconnect the port ahead of the moving annular piston to the outlet means and the port behind the moving annu-

lar piston to the inlet means, said valving means including first and second platelike members, a plurality of spaced hollow tubes extending through the platelike members and maintaining said members at a fixed spacing, and an



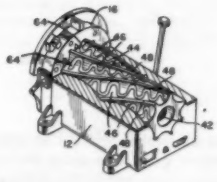
open-ended pipe affixed to said first platelike member and providing fluid communication between the inlet means through said first platelike member to the space between said plurality of tubes.

4,424,013

ENERGIZED-FLUID MACHINE

Richard H. Bauman, 76 Marshall Concourse, Cliffwood Beach, N.J. 07735

Filed Jan. 19, 1981, Ser. No. 226,420
Int. Cl.³ F04C *5/00*
U.S. Cl. 418—48 **4 Claims**



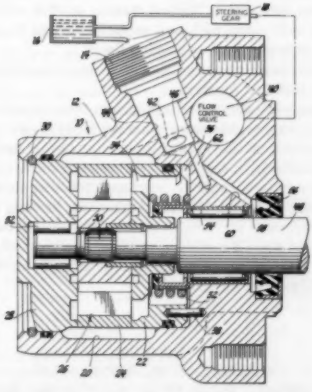
1. An energized fluid machine, comprising:
a housing having spaced apart end walls;
said housing defining therewithin a chamber, intermediate said walls, having a longitudinal axis;
rotor mounting means supported in said end walls;
a rotor mounted in said mounting means for rotation thereof within said chamber; and
fluid inlet and outlet ports formed in at least one of said end walls;
said housing having means circumscribing said chamber defining a given plurality of parallel, arcuate lands extending lengthwise of said housing between said walls; wherein
each of said lands defines, with another thereof adjacent thereto, a radial groove, said plurality of lands defining a same given plurality of grooves;
said rotor having a differing plurality of arcuate grooves formed therein and extending lengthwise thereof in parallel;
each of said arcuate groove defines, with another thereof adjacent thereto, a radial rib, said differing plurality of arcuate grooves defining a same plurality of ribs as said arcuate grooves;
said lands and radial grooves, and said arcuate grooves and said radial ribs are spirally formed axially of said housing;
said lands and radial grooves describe a spiral of a given arc; and
said arcuate grooves and said radial ribs describe a spiral of an arc which differs from said given arc; and
said rotor mounting means comprises journals formed in said end walls, and a shaft;
said rotor being hollow centrally thereof, and having gear means fixed therewithin; and
said shaft having ends thereof journalled in said end wall journals, and having a centrally mounted gear fixed thereto in mesh with said gear means; wherein
said ribs occlude and open said inlet and outlet ports during rotation of said rotor within said chamber; wherein
each of said end walls has four inlet ports and four outlet ports formed therein;
said inlet ports in said end walls, and said outlet ports in said end walls being in linear alignment with each other; and
upon one of said ribs just commencing to uncover a given one of said inlet ports in one of said end walls, said one rib is coincidentally just completing occlusion of a given one of said outlet ports in the other of said end walls.

4,424,014

POWER STEERING PUMP DRIVE SHAFT SEAL AREA DRAIN STRUCTURE

Stanley E. Anderson, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jun. 8, 1981, Ser. No. 271,660
Int. Cl.³ F04C *2/00, 15/00*
U.S. Cl. 418—104 **2 Claims**



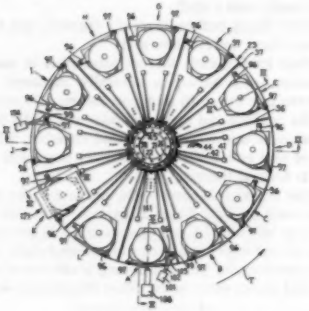
1. A power steering pump for use with a remote reservoir system, said pump comprising; a pump housing; vane type pump means disposed in said pump housing; drive shaft means for driving said vane type pump means; seal means disposed in a cavity in the pump housing for preventing leakage from along said shaft to atmosphere; the interior of said housing being subjected to either pump discharge pressure or pump inlet supercharged pressure; supply port means for communicating fluid as necessary from the remote reservoir to said housing with the fluid in said supply port means being at a pressure less than either interior pressures; passage means communicating said cavity on the pump side of the seal means with said supply port means for maintaining the pressure adjacent said seal means at a pressure level substantially equal to the pressure at said supply port means by enabling leakage along the shaft to communicate directly with the supply.

4,424,015

APPARATUS FOR INJECTION MOLDING

John W. Black, Hickory Corners; Richard D. Shupe, and Earl Simon, both of Kalamazoo, all of Mich., assignors to Pemco-Kalamazoo, Inc., Kalamazoo, Mich.

Filed Mar. 12, 1981, Ser. No. 243,030
Int. Cl.³ C01G *1/00*
U.S. Cl. 425—138 **25 Claims**



1. An injection molding apparatus, comprising:

a support element having at least one plural part injection mold supported thereon;

mold means defining a mold cavity in said plural parts of said injection mold and an inlet thereto, said inlet being located at a first location relative to said support element, said plural parts being separated by a parting plane;

means for rendering said support element yieldable in a direction perpendicular to said parting plane when force in said direction is applied thereto so that said injection mold will move with said support element in said direction in response to an applied force;

injection nozzle means located at a second location different from said first location;

force applying means for supplying a force in said direction to said support element to thereby facilitate an orientation of said inlet at said second location to enable said injection nozzle means to supply moldable material to said inlet; and

abutment means separate from said force applying means oriented to engage said mold means for limiting the movement thereof to orient said inlet at said second location and for simultaneously facilitating the tight clamping of said mold means between said force applying means and said abutment means.

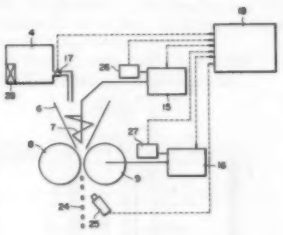
4,424,016

GRANULATING APPARATUS

Masami Matsuda; Koichi Chino, and Kazuhiko Kudo, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 22, 1981, Ser. No. 333,628
Claims priority, application Japan, Dec. 23, 1980, 55-181265
Int. Cl.³ B29C *3/02*
U.S. Cl. 425—144 **11 Claims**

1. A granulating apparatus including: means supplying a powder to be treated, means supplying a binder made of a thermoplastic or thermosetting resin, means mixing the binder into the powder to be treated, granulation means having a pair of rolls with opposed interstices and compression molding the powder to be treated and binder into pellets, screw feeder means which feeds the powder to be treated with the binder mixed therein into the interstices between said rolls while stirring the powder to be treated, driver means which drive said screw feeder means and said rolls respectively, temperature detector means which measures a temperature of the powder to be treated, and controller means which controls a rotational frequency of at least one of said screw feeder means



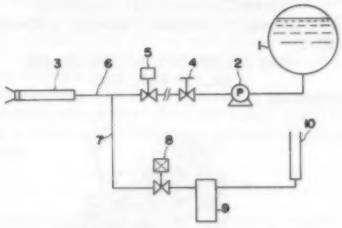
and said rolls on the basis of the powder temperature measured by said temperature detector means.

4,424,017

SYSTEM AND METHOD FOR BURNING LIQUEFIED GASES

Noboru Okigami; Yoshitoshi Sekiguchi, both of Maizaru; Hiroshi Hayasaka, Sapporo; Toshitsugu Koyama, Maizuru; Takeo Fujioka, Yokohama, and Takeshi Yoshimitsu, Kanagawa, all of Japan, assignors to Hitachi Shipbuilding & Engineering Company Limited, Osaka and Mitsui Liquefied Gas Co., Ltd., Tokyo, both of, Japan

Filed Feb. 13, 1981, Ser. No. 234,591
Int. Cl.³ F23D *11/38*
U.S. Cl. 431—3 **5 Claims**



1. A method for stably burning a liquefied gas in apparatus including a burner gun for spraying the liquefied gas into a combustion space, pump means for feeding the liquefied gas under pressure from a supply source to the burner gun through supply pipe means, a flow regulating valve disposed in the supply pipe means, and a shut-off valve disposed in the supply pipe means between the flow regulating valve and the burner gun, said method comprising:

(a) supplying the liquefied gas from said regulating valve through said supply pipe means to said burner gun and providing the portion of said supply pipe means downstream from said regulating valve with an inner diameter so determined in relation to the flow rate of said liquefied gas that said liquefied gas flows through said portion in a fog or bubble state; and,

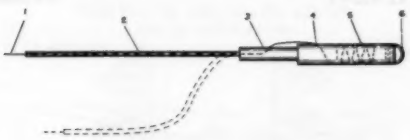
(b) purging said apparatus by positioning closable and openable purging pipe means below said supply pipe means, connecting said purging pipe means to said supply pipe means from below between said shut-off valve and said burner gun, closing said shut-off valve, opening said purging pipe means, and discharging the liquefied gas remaining in said supply pipe means between said shut-off valve and said burner gun into said purging pipe means by gravity and the vapor pressure of said remaining liquefied gas.

4,424,018

FLEXIBLE FIRELIGHTER

Roy E. Lowther, Sr., 8651 Foothill Blvd., Space 196, Rancho Cucamonga, Calif. 91730

Filed Sep. 14, 1981, Ser. No. 301,954
Int. Cl.³ F23D 3/16
U.S. Cl. 431—288 6 Claims



1. A firelighting device, comprising:

an inflammable flexible wick taper;

an adjustably shaped semi-rigid tubular member having a first end thereof open to slidably receive said taper therein;

adjustment means to change and hold the shape of said tubular member so as to enable an insertion of said tubular member into a device to be lit which has a recessed fuel source, said insertion bringing said wick taper in close proximity to said fuel source;

an elongate cylindrical handle member circumposed on said adjustable tubular member adjacent the other second end thereof, having means to permit finger axial control of said taper within said tubular member while storing the unused portions of said taper; and

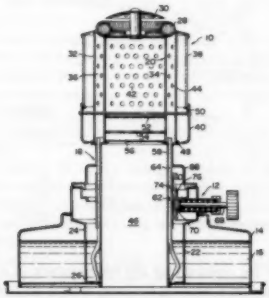
an endcap closure to environmentally protect said unused taper portions having means of being secured to the opposite end of said handle member.

4,424,019

DEVICE FOR VERTICALLY MOVING THE WICK OF AN OIL BURNER

Kazuharu Nakamura, Nagoya; Yoshio Mito; Akiyoshi Okayasu, both of Gifu, and Kazuhiko Takeuchi, Nagoya, all of Japan, assignors to Toyotomi Kogyo Co., Ltd., Aichi, Japan

Filed Jul. 7, 1981, Ser. No. 281,136
Int. Cl.³ F23D 3/32
U.S. Cl. 431—307 6 Claims



1. A device for vertically moving a wick in an oil burner comprising:

a drive shaft having a pinion;

means for rotatably mounting said drive shaft on said burner;

a rack means engaged with said pinion of said drive shaft, said rack means being provided adjacent to a wick receiving chamber of said oil burner and being connected with respect to said wick received in said wick receiving chamber so as to vertically move said wick when said drive shaft is rotated;

a stop means provided adjacent to said pinion and said rack means, said stop means being adapted to engage said drive shaft to stop the movement of said rack means with respect to said drive shaft only when said wick is lowered to the minimum normal combustion position and to allow said drive shaft to be freely rotated between the maximum normal combustion limit and the minimum normal combustion limit; and

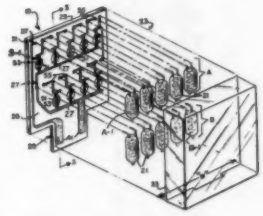
means for disengaging said stop means and said drive shaft to permit continued lowering of said rack means and said wick to the combustion extinguishing position.

4,424,020

MINIATURE PHOTOFLASH UNIT USING SUBMINIATURE FLASH LAMPS

Andre C. Bouchard, Peabody; George J. English, Reading; Harold H. Hall, Jr., Marblehead, and John A. Scholz, Danvers, all of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed May 8, 1981, Ser. No. 262,008
Int. Cl.³ F21K 5/02
U.S. Cl. 431—359 17 Claims



1. A miniature photoflash unit for being electrically activated when electrically connected to a power source associated with a camera, said unit comprising:

a small, substantially planar housing including an electrically insulative base and a light-transmitting cover secured to or forming a part of said base;

lamp-firing circuitry located within said housing and positioned on a first surface of said base;

first and second pluralities of subminiature, electrically-activated flash lamps each including a glass envelope and a pair of lead-in wires projecting from one end of said envelope, said lead-in wires passing through said base to a second surface opposite said first surface and being secured to said base and electrically connected to said lamp-firing circuitry on said first surface, said flash lamps located within said housing in a substantially planar array such that said envelopes are positioned adjacent said first surface of said base, said first plurality of lamps oriented in a linear pattern and occupying a first region within said housing, said second plurality of lamps oriented in a linear pattern and occupying a second region within said housing separate from said first region, said lamp-firing circuitry selectively igniting said flash lamps in both of said regions such that said lamps in said first region will be sequentially ignited prior to said lamps in said second region; and

a singular mounting device secured to said housing or forming a part thereof for electrically connecting said photoflash unit to said power source associated with said camera when said mounting device is connected to said power source, said device including first and second electrical terminals positioned on a surface of said device and electrically joined to said lamp-firing circuitry for supplying ignition pulses to said circuitry to effect said selective ignition of said flash lamps in response to receipt of said pulses from said power source, said second region of said flash lamps located be-

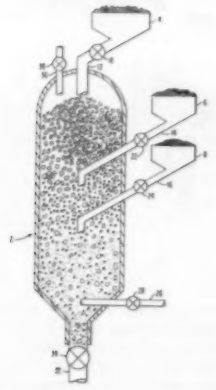
tween said mounting device and said first region of flash lamps.

4,424,021

METHOD FOR RETORTING CARBONACEOUS PARTICLES

LaVaun S. Merrill, Jr., Englewood, Colo., assignor to Marathon Oil Company, Findlay, Ohio

Filed Dec. 30, 1981, Ser. No. 335,906
Int. Cl.³ F27B *15/00*; F26B *3/00*; C10G *1/00*
U.S. Cl. 432—14 **13 Claims**



1. In the method of thermolytically treating solid particles having a range of particle sizes in a substantially vertical gravity feed gas heated retort, said retort having an upper portion and a lower portion including a heated gas inlet, wherein substantially all of said particles are substantially continuously downwardly nonturbulently flowing in said retort due to the effect of gravity while being heated with continuously upwardly flowing heated gases, said gases flowing upwardly from said gas inlet at a nonfluidizing rate relative to said particles, wherein the improvement comprises reducing pressure drop in said retort and maintaining the residence time in said retort of each said solid particle directly proportional to the size of each said solid particle by:

obtaining at least two portions of to-be-treated particles including a first portion which includes the largest to-be-treated particles while substantially excluding the smallest particles, substantially all the to-be-treated particles in said first portion having a particle size of at least one inch (2.5 cm), and a second portion including substantially all of the smallest to-be-treated particles, substantially all of the to-be-treated particles in said second portion having a particle size less than 1 inch (2.5 cm);

inserting said first portion including said largest particles into an upper portion of said retort; and

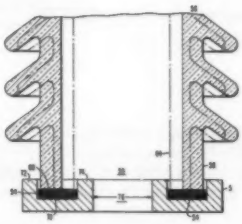
inserting the second portion including said smallest particles into a lower portion of said retort at a vertical location below where said first portion is inserted.

4,424,022

METHOD OF USING CERAMIC GREENWARE SUPPORT

Lear C. Herrold, Derry, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Division of Ser. No. 158,089, Jun. 10, 1980, Pat. No. 4,330,270. This application Feb. 16, 1982, Ser. No. 348,898
Int. Cl.³ F27D *5/00*; F23J *15/00*
U.S. Cl. 432—5 **4 Claims**



1. A method for firing ceramic greenware, comprising the steps of:

(a) providing a sufficient depth of granules alone in a concave surface of a container to support said greenware thereon and to permit relative movement of at least those granules in contact with said greenware so as to minimize distortion of said greenware when said greenware shrinks during the firing thereof;

(b) leveling the surface of said sufficient depth of granules;

(c) placing said greenware on said level surface; and

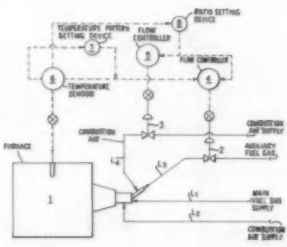
(d) firing said greenware.

4,424,023

METHOD AND APPARATUS FOR TEMPERATURE CONTROL IN HEATING FURNACES

Toshio Matsuoka, Niihama, Japan, assignor to Sumitomo Heavy Industries, Ltd., Tokyo, Japan

Filed Mar. 3, 1982, Ser. No. 354,428
Claims priority, application Japan, Mar. 9, 1981, 56-33615
Int. Cl.³ F27D *7/00*; F27B *1/26*
U.S. Cl. 432—19 **13 Claims**



1. A method for controlling the temperature of a charge of material disposed in a heating furnace, which comprises: heating said charge of material by radiant heat emitted from a flame generated by combustion of fuel gas in said heating furnace; varying the degree of completeness of combustion of said fuel gas so as to alter the soot content of said flame, to thereby change the emissivity of said flame and thereby modify the amount of radiant heat transferred to said charge of material, the amount of said soot in said flame being increased in order to increase said flame emissivity and thereby increase the radiant heat transferred to said charge of material, and the amount of said soot in said flame being decreased in order to

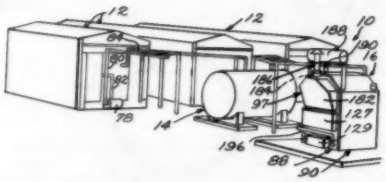
decrease said flame emissivity and thereby decrease the radiant heat transferred to said charge of material.

4,424,024

BULK CURING WITH SOLID FUEL

Robert W. Wilson, Charlotte, and Olin C. Trull, Monroe, both of N.C., assignors to Powell Manufacturing Company, Inc., Bennettsville, S.C.

Filed Nov. 16, 1981, Ser. No. 321,707
Int. Cl.³ F27B *19/00*
U.S. Cl. 432—90 **12 Claims**



1. Apparatus for bulk curing tobacco comprising a barn structure having means defining a path for the circulation of air including curing compartment means within said path, leaf piercing tine means for supporting a multiplicity of tobacco leaves in initally compressed bulk form within said curing compartment means for curing by contact with the air circulating in said path, fan means within said path for establishing and maintaining a forced circulating flow of air in said path in contact with tobacco leaves supported therein, damper means within said path for controlling the introduction of outside air into said path to be circulated therein and the discharge of circulating air from said path to the atmosphere to thereby vary the relative humidity of the circulating air contacting the tobacco leaves supported within said curing compartment means, and heating means within said path for applying heat to the air circulated in said path to thereby vary the temperature of the circulating air contacting the tobacco leaves supported within said curing compartment means, the improvement which comprises

said heating means comprising heat exchanger means defining interior flow path means for heated water and exterior heat exchange surface means within said air flow path,

hot water supply means, and

power operated pump means for circulating hot water between said hot water supply means and said heat exchanger means,

said hot water supply means including a hot water heating unit, a hot water storage unit and means for continuously circulating water between said hot water heating unit and said hot water storage unit, said hot water heating unit comprising

an inner casing structure defining an interior combustion chamber,

an outer casing structure extending over a portion of the exterior of said inner casing structure and defining with said exterior portion of said inner structure a water circulating space communicating with said continuous circulating means,

a grate assembly within said combustion chamber for supporting solid fuel for combustion therein,

exterior door means leading to said combustion chamber for supplying solid fuel into said combustion chamber in supported relation to said grate assembly and for removing ashes from said combustion chamber,

forced draft blower means for establishing a forced flow of combustion air into said combustion chamber,

said forced draft blower means comprising primary combustion air conduit means extending beneath said grate assembly for providing combustion air to the solid fuel supported thereabove on said grate assembly, separate secondary air conduit means extending above said grate assembly for providing combustion air for the pyrolysis gases produced by the burning solid fuel supported on said grate assembly, power operated blower means for delivering a supply of combustion air to said primary and secondary air conduit means and means for varying the proportion of the supply of combustion air delivered to said primary air conduit means in relation to said secondary air conduit means,

induced draft blower means for inducing a flow of combusted gases from said combustion chamber, and

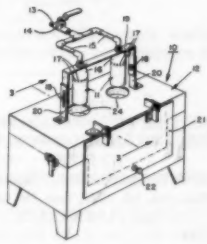
means for controlling the operation of said blower means so as to control the combustion rate of the supplied solid fuel and hence the amount of heat added to the water circulating in said water circulating space.

4,424,025

GAS FORGE

Donald R. Jones, Rte. 1, Box 343, Pleasant Garden, N.C. 27313

Filed Apr. 15, 1982, Ser. No. 368,627
Int. Cl.³ F24J *3/00*; B21J *19/00*; F23D *13/24*; F23C *5/08*
U.S. Cl. 432—120 **6 Claims**



1. A forge comprising: a housing, a heating chamber within said housing, said housing defining an opening, a gas burner, said burner being outwardly, openly spaced from said housing opening, a door means, said door means being hingeable and adjustably closable, said burner for directing a flame from said burner through the open space between said burner and said housing opening and through said housing into said heating chamber.

4,424,026

EQUIPMENT FOR MANUFACTURING GAS-FILLED DISCHARGE TUBES FOR USE AS TRANSIENT PROTECTION

C. Arne Schleimann-Jensen, Stockholm, Sweden, assignor to TII Industries, Inc., Copiague, N.Y.

Filed Nov. 17, 1981, Ser. No. 322,237
Int. Cl.³ F27D *3/04*, *1/18*; F27B *5/04*
U.S. Cl. 432—125 **17 Claims**

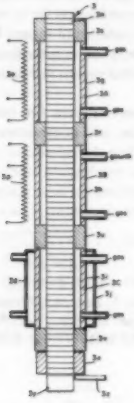
1. A furnace system for producing a vacuum-tight joining of stacked or suitably preassembled components of gas-discharge tubes disposed on treatment trays which are adapted to move through said furnace system for treatment, e.g. diffusion/effusion/cooling, after suitable pretreatment, such as preheating/-preparation of the surface, comprising:

a. at least two hollow tubular-shaped treatment section means disposed vertically in co-axial alignment extending between an inlet end and an outlet end of said furnace system;

b. a hollow tubular-shaped gate means disposed between said treatment section means and in alignment therewith; and

c. treatment tray means being dimensioned to pass through said gate means in a generally vertical direction, the materials and dimensions of said gate means and said treatment

tray means being selected to provide a sealing effect between each said tray means and said two treatment section



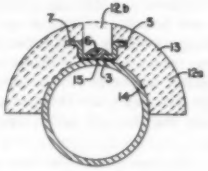
means without substantially increasing the friction between said treatment tray means and said gate means.

4,424,027

INSULATING TILE FOR APPLICATION TO WATER COOLED PIPES AND METHOD FOR APPLYING SAME TO PIPES

Paul V. Suey, 1043 Blackforest Rd., Pittsburgh, Pa. 15235

Filed Jun. 14, 1982, Ser. No. 388,035
Int. Cl.³ F27D *3/02*
U.S. Cl. 432—233 **5 Claims**



1. In a refractory tile section for application lengthwise about a water-cooled steel pipe such as pipes used for support of work pieces in a metallurgical reheating furnace and the like, the tile comprising an elongate body of concavo-convex transverse cross-section, the inner concave surface of which conforms to the exterior curvature of the metal pipe to which the tile is to be applied for use with at least one other complementary tile section of matching contour, the improvement wherein;

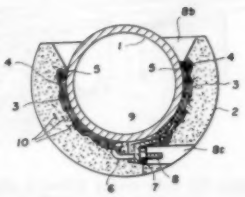
(a) the refractory body of the tile has a flanged channel section embedded therein which has a bottom, an upstanding side wall along each side of the bottom, each side wall having a laterally turned flange along its upper edge, the bottom having at least one opening therethrough substantially centered between the two side walls of the channel and of a diameter not substantially greater than half the distance between the side walls of the channel, the tile having a radial hole, extending through the refractory from the bottom of the interior of the channel to the exterior of the refractory, of a diameter approximately equal to the distance between the side walls of the channel, and concentric with the opening through the bottom of the channel, the outer surface of the bottom of the channel being clear of the surrounding refractory body of the tile whereby said surface may contact the exterior of the metal pipe about which the tile is placed, the metal of the channel being otherwise embedded in and surrounded by the refractory including the interior of the channel except where said radial hole is located.

4,424,028

REINFORCED INSULATION FOR WATER COOLED PIPES

Matthias R. Magera, 311 Hawthorne Sq., Oakdale, Pa. 15071

Filed Aug. 27, 1981, Ser. No. 296,642
Int. Cl.³ F27D *3/02*
U.S. Cl. 432—234 **3 Claims**



1. For use for heating insulating a fluid flowing cooling pipe in a furnace or the like, a pair of arcuate, pre-fabricated sleeve portions of refractory material, a metallic mesh embedded along the length of the inner surfaces of said sleeve portions and having parts thereof exposed and projecting beyond the inner surface of said refractory material so as to provide metallic contact with said pipe, a J-bolt hooked onto one end of said metallic mesh of one sleeve portion and embedded in said refractory material except for a threaded shank portion extending beyond said one end, and eye having an integral support embedded in one end of the adjacent sleeve portion and arranged so that said threaded shank extends through said eye, a hole in said one end of the adjacent sleeve portion, a nut projecting into said hole and screw threaded to said exposed shank to tightly hold together the adjacent end of said meshes of adjoining sleeve portions, terminal means connected to the other end of said meshes and comprising substantially U-shaped clips reversely bent in a circumferential direction and extending in a longitudinal direction and being integrally secured to the outer surface of said pipe for anchoring the other ends of said sleeve portions as well as serving as an attaching means for said clips permanently connected to said sleeve portions, whereby said metallic mesh may be tensioned upon tightening of said nut.

4,424,029

LINGUAL PLACEMENT DEVICE

Rolf Maijer, Ladysmith, and James U. Starck, Victoria, both of Canada, assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Jun. 1, 1982, Ser. No. 383,712
Int. Cl.³ A61C *7/00*
U.S. Cl. 433—3 **11 Claims**

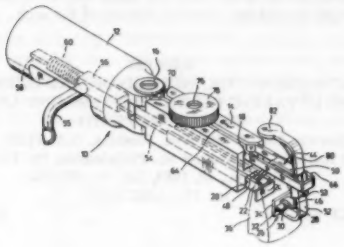
1. A lingual placement device for orthodontic attachments, comprising:

tooth engaging means for engaging the forward side of a tooth,

orthodontic attachment holding means for holding an orthodontic attachment in engagement with the lingual side of a tooth,

means on said device for moving said attachment holding means in a horizontal direction towards and away from said tooth engaging means for bringing an orthodontic attachment into engagement with the lingual side of a tooth when said tooth engaging means is in engagement with the forward side of the tooth,

means on said device for moving said attachment holding means in a vertical direction for positioning an orthodontic attachment in a desired vertical location with respect to the lingual side of a tooth when the tooth engaging



means is in engagement with the forward side of the tooth, and

handle means operatively connected to said tooth engaging means and to said attachment holding means.

4,424,030

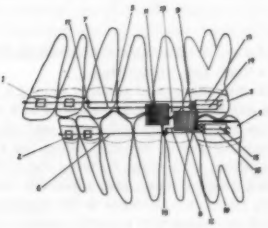
INTEGRATED ORAL MAGNETIC OSTEOGENIC AND ORTHODONTIC APPLIANCES

Harry Smiley, White Plains, and Abraham Blechman, Tappan, both of N.Y., assignors to Medical Magnetics, Inc., Ridgewood, N.J.

Continuation of Ser. No. 19,427, Mar. 12, 1979, abandoned. This application Nov. 18, 1981, Ser. No. 322,423

Int. Cl.³ A61C *7/00*

U.S. Cl. 433—18 **10 Claims**



1. Dental modules for use in an oral osteogenic and orthodontic appliance in which at least a pair of magnets is adapted to be mounted by archwires to the upper and lower jaws so that the fields will be displaced relative to each other to promote osteogenesis and soft tissue repair, comprising first and second permanent magnets, a non-magnetic and non-corrosive sleeve encasing and protecting each magnet from impact and oxidation and exposing the magnet only at the poles thereof, each such sleeve being of electrically conductive material and being peripherally continuous, whereby flux concentration is enhanced at the poles of each magnet, means fixing the magnet within each sleeve to prevent movement between each magnet and its sleeve, a thin, strong coating on the poles for protecting the magnets from damage due to oxidation and the oral cavity from potentially toxic corrosion products of the magnets, archwire-mounting means on one of the sleeves for mounting the same to the upper jaw, and archwire-mounting means on the other of the sleeves for mounting the same to the lower jaw, said respective mounting means being adapted to position a pole of one magnet in substantially opposed and closely spaced adjacency to a pole of the other magnet at least during a portion of a cycle of jaw articulation; whereby reaction between said magnets develops a tooth-displacement force effective to displace at least one tooth in one of the jaws and to thereby develop a void in the one jaw in the wake of such tooth displacement, and further whereby, in the course of jaw articulation, the magnetic fields of said magnets react to produce in the developing-void region an external field which varies as a function of jaw articulation, said external field being therapeutically beneficial as an aid to formation of new bone in the void region.

4,424,031

DENTO-FACIAL ORTHOPAEDY APPARATUS

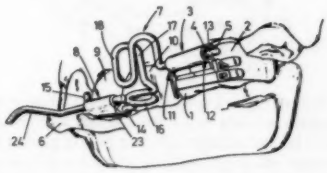
Jose Dahan, 1, Clos des Dahlias, Kraainem, Belgium

Filed Mar. 22, 1982, Ser. No. 360,770

Claims priority, application Belgium, Mar. 24, 1981, 204246

Int. Cl.³ A61C *7/00*

U.S. Cl. 433—18 **15 Claims**



1. A dento-facial orthopaedy apparatus comprising:

force-conveying means at the level of two right-side and left-side molars;

anchoring means for said force-conveying means on both said molars;

each of said anchoring means comprising a tube-like element fixedly connected to one of said molars, said tube-like element being provided with an axial recess outwards opened through a lengthwise groove;

said force-conveying means comprising fastening means cooperating with each of said anchoring means, each fastening means being movable in a substantially radial direction relative to the corresponding tube-like element independently of the remaining portion of said force-conveying means, and being so entered in said axial recess of said tube-like element through the lengthwise groove thereof; and

locking means to prevent any radial movement of the fastening means of the force-conveying means after entering their tube-like element.

4,424,032

ORTHODONTIC APPLIANCE

Raymond P. Howe, Dexter, Mich., assignor to Growth and Development Research, Inc., Gregory, Mich.

Filed Oct. 26, 1981, Ser. No. 315,101

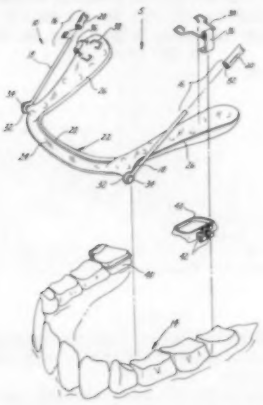
Int. Cl.³ A61C *3/00*

U.S. Cl. 433—19 **29 Claims**

1. In an orthodontic jaw correction appliance of the type comprising positioning means operatively disposed between the upper and lower dental arches, said positioning means including a pair of cooperatively engaged elements one of which is associated with one arch and the other of which is associated with the other arch, said elements being operable as the jaw closes to translate the natural jaw closure force into a corrective force component acting between the two arches, the improvement for operatively relating one element to its associated arch comprising a generally U-shaped splint comprising a generally U-shaped molded plastic body conforming to the general U-shape of the associated arch for application to the cusps of teeth thereof including molar teeth on laterally opposite sides and all teeth mesial to said molar teeth, and bonding means disposed on the U-shaped molded plastic body

for bonding said molded plastic body to the cusps of the teeth so that said splint acting through said bonding means stabilizes said molar teeth and all teeth mesial thereto as a unit to effect jaw correction, said one element and said splint having a point of operative coupling which is mesial to the point of bonding of the splint to at least some of said molar teeth.

16. In an orthodontic jaw correction appliance of the type comprising positioning means operatively disposed between the upper and lower dental arches and comprising two pairs of operatively engaged elements with the two pairs being disposed on opposite lateral sides of the appliance and each pair comprising a first element associated with one arch and a



second element associated with the other arch, the improvement for operatively relating the first and second elements of each pair with their respective arches comprising a splint to which both said first elements are operatively connected and which is adapted to be applied to the one arch and a pair of members for mounting on teeth of the other arch, each member being associated with a corresponding one of said second elements, and mating connector structures on each side member and the corresponding second element for connecting each said member with the corresponding second element, each said mating connector structure comprising a pair of interfitted projections and tubes.

4,424,033

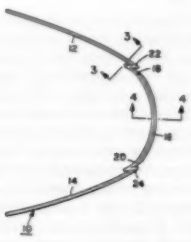
ORTHODONTIC APPLIANCE

Arthur L. Wool, 1402 Penn Ave., Wyomissing, Pa. 19610

Continuation-in-part of Ser. No. 404,572, Aug. 2, 1982, abandoned, which is a continuation-in-part of Ser. No. 389,017, Jun. 16, 1982, abandoned. This application Oct. 4, 1982, Ser. No. 432,777

Int. Cl.³ A61C *7/00*

U.S. Cl. 433—20 **14 Claims**



1. An orthodontic arch wire having posterior segments of circular cross-section and an anterior segment connecting said posterior segments, said anterior segment having a uniform, non-circular cross-section throughout substantially its entire length, in which the wire is formed into an arch having an anterior and a posterior portion and in which said non-circular cross-section has substantially flat upper and lower sides which converge toward the posterior portion of the arch.

4,424,034

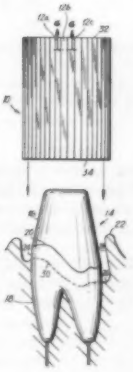
ARRANGEMENT FOR, METHOD OF, AND DEVICE FOR USE IN TAKING DENTAL IMPRESSIONS AND IN RESTORING TEETH

Paul Korwin, 150-09 77th Ave., Flushing, N.Y. 11367, and Robert Korwin, 2300 Walnut St., Philadelphia, Pa. 19103

Filed Jun. 10, 1983, Ser. No. 503,066

Int. Cl.³ A61C *9/00*

U.S. Cl. 433—40 **31 Claims**



1. A device for use in taking dental impressions of a prepared tooth having a finish line, comprising:

a tooth-encircling adjustment member having a plurality of elongated adjustable elements mounted in a surrounding relationship with the prepared tooth, said adjustable elements being adjustably movable along the direction of their elongations in a space between the tooth and the surrounding gingival tissue, said adjustable elements having leading edges as considered in the direction of movement which are adjustably movable toward a circumferentially extending attachment line defined by the neck of the tooth and its immediately adjacent gingival tissue, said adjusted leading edges together defining a circumferentially extending impression line whose contour resembles the contour of one of said lines, whereby accurate custom-made impressions of the prepared tooth may be taken.

4,424,035

SELF-CENTERING DENTAL FACE-BOW

Gorm P. Hansen, 1501 SE. 23rd Ave., Pompano Beach, Fla. 33062

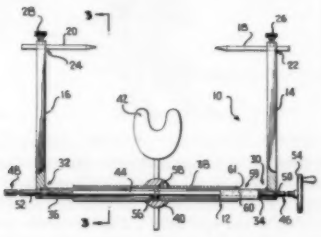
Filed Oct. 9, 1981, Ser. No. 310,411

Int. Cl.³ A61C *19/04*

U.S. Cl. 433—73 **5 Claims**

1. A self-centering dental face-bow comprising in combination an elongated cross-bar adapted to be disposed across the front of a dental patient's face in spaced relationship therewith, a mount which is adapted to receive various dental appliances which are to be engaged by a patient's mouth, said mount being disposed generally centrally on said cross-bar, a pair of spaced arms extending transversely from said cross-bar for disposition along associated sides of a patient's head in spaced relationship therewith and being movable toward and away from each

other in the direction of length of said cross-bar, means disposed on each of said arms for engaging an associated side of a patient's head, means incorporated with said cross-bar for adjustably moving said arms toward and away from each other equidistantly in relation to said mount thereby to adjust the spacing between said arms and maintain said mount in said generally central disposition, said cross-bar being a tube, each of said arms including a tubular portion extending coaxially with said cross-bar tube, said tubular portions being slidably received within an associated end of said cross-bar tube, said adjustably moving means including a rotatable shaft extending coaxially through said cross-bar tube and said tubular portions



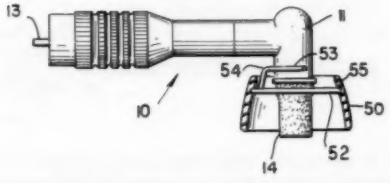
and being relatively rotatable thereto, said shaft having right hand threads at one end thereof for threadingly engaging one of said arms and left hand threads at another end thereof for threadingly engaging the other of said arms, whereby upon rotation of said shaft said tubular portions of said arms move slidably toward and away from each other, said cross-bar and shaft include cooperative means for precluding axial movement of said shaft relative to said cross-bar and, said cooperative means includes an inwardly directed tang disposed generally centrally within said cross-bar which relatively rotatably engages a circumferential indentation disposed generally centrally on said shaft.

4,424,036

ANTI-SPLASH CUP FOR DENTAL PROPHYLAXIS

Oddvin Lokken, 131 Forest Ave., Rye, N.Y. 10580

Filed Mar. 18, 1982, Ser. No. 359,223
Int. Cl.³ A61C *1/16*
U.S. Cl. 433—116 **15 Claims**



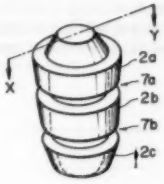
1. An anti-splash device for attachment to a dental prophylaxis tool having a dental prophylaxis member and means for delivering water from the head thereof during use, comprising an elongated, hollow tubular member and means for securing said hollow tubular member to the head of said dental tool in such a manner that the entire extent of said hollow tubular member is spaced apart from said head and is spaced apart from and surrounds said water delivery means, whereby the dental prophylaxis treatment may be observed through the space between said head and the top of said hollow tubular member.

4,424,037

DENTAL IMPLANT

Makoto Ogino, Yokohama; Takamitsu Fujiu, Tokyo; Toshihiko Futami, Kawasaki; Michio Kariya, Yokohama, and Takeo Ichimura, Tokyo, all of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Jan. 29, 1982, Ser. No. 343,833
Claims priority, application Japan, Feb. 4, 1981, 56-14636
Int. Cl.³ A61C *8/00*
U.S. Cl. 433—173 **2 Claims**



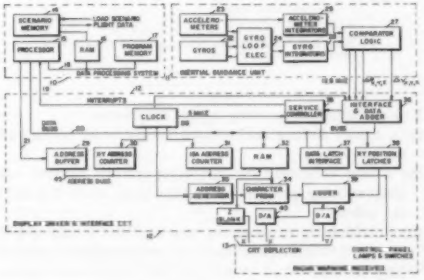
1. In a dental implant comprising a core member and a coating layer of a biologically active glass or glass-ceramic material covering at least part of the portion of said core member which is to be embedded in the jawbone, the improvement wherein said coating layer comprises at least two portions completely separated from each other, thereby preventing propagation of cracks over the entire coating layer.

4,424,038

INFLIGHT AIRCRAFT TRAINING SYSTEM

Paul Tingleff, Amherst; Homer Prue, and Charles Stewart, both of Nashua, all of N.H., assignors to Sanders Associates, Inc., Nashua, N.H.

Filed Jan. 31, 1980, Ser. No. 117,407
Int. Cl.³ G09B *9/08*
U.S. Cl. 434—2 **5 Claims**



1. A method for providing inflight training scenarios for a radar warning receiver aboard a military aircraft comprising the steps of:

storing data including an indication of the type and position of simulated search and threat weapon radar sources relative to an arbitrary point at which said training scenario is started,

determining the position of said military aircraft with respect to said arbitrary point,

determining the attitude and position of said aircraft, and computing coordinates which represent the location of said aircraft with respect to simulated radar source coordinates,

comparing the position of said aircraft with respect to said arbitrary point to the position of simulated radar sources

as reflected by said stored data to determine the distance between said aircraft and said simulated radar sources,

providing a visual display of those simulated radar sources that are within a predetermined range from said aircraft,

providing an audible signal to the operator of said radar warning receiver upon said aircraft coming within a predetermined distance of certain ones of said simulated radar sources,

providing an input via the controls of said radar warning receiver indicating simulated radar sources associated with certain types of anti aircraft weapons systems that are not to be displayed; and

preventing the display of said last mentioned simulated radar sources when said last mentioned input is present.

4,424,039

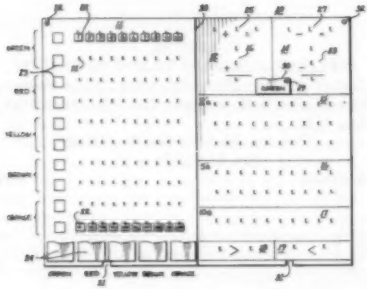
MATHEMATICS TEACHING DEVICE

Jack E. Washburn, 22319 W. Meade La., Buckeye, Ariz. 85326

Filed Sep. 29, 1982, Ser. No. 428,355

Int. Cl.³ G09B *19/02, 1/10*

U.S. Cl. 434—189 **12 Claims**



1. A mathematics teaching device comprising:

(a) a display surface, said surface being divided into a number of regions;

(b) a first collection of numbered colored plaques, said plaques being grouped into subdivisions, each of a different color;

(c) a multiplicity of receiving means affixed to said display surface for removably receiving said plaques on said display surface;

(i) a first portion of said receiving means being mounted in rows and columns in a first region of said display surface, the number of said receiving means within said first region being equal to the number of plaques in said first collection;

(ii) a second portion of said receiving mans being mounted in a second region of said display device to facilitate the performance of arithmetic operations thereon;

(d) a second collection of numbered colored plaques;

(e) container means affixed to said display surface proximate to said second region for removably receiving said second collection of plaques;

(f) a number of color-coded receiving means attached to said display surface for removably receiving plaques of said first collection, the number of said receiving means being equal to the number of subdivisions in said first collection.

4,424,040

SKI TRAINING HALTER

Sue Buchheister, 11 Fox La., P.O. Box 80, and Ann Poulson, Box 132, both of Fraser, Colo. 80442

Filed Feb. 20, 1981, Ser. No. 236,671

Int. Cl.³ A63C *11/00*

U.S. Cl. 434—253 **14 Claims**

1. Ski training halter apparatus for restraining and controlling a student skier by an instructor, comprising two looped members, each of which extends around the rear of one of the student's thighs and upwardly across the front of the lower abdominal region to the hip region at the respectively opposite of the student's sides, and force application means attached to said looped members adjacent the student's hips for the instructor to apply restraining and control forces on the student's hips, lower abdomen, and thighs from a position of a spaced distance away from the student.

4,424,041

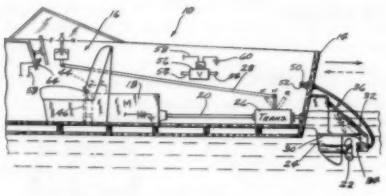
TROLLING DRIVE MEANS FOR BOATS

Vernon H. Sietmann; Leonard J. Lukehart, both of Laurel, Iowa 50141, and Dale E. Locker, Gilman, Iowa 50106

Filed Aug. 26, 1981, Ser. No. 296,326

Int. Cl.³ B63H *5/13*

U.S. Cl. 440—5 **2 Claims**



1. In combination with a boat having an inboard motor operatively connected to a primary propeller on the exterior of the boat,

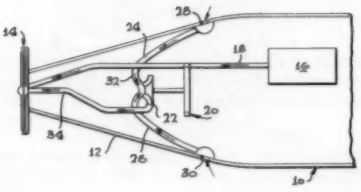
a hydraulic motor operatively connected to a secondary propeller and being supported by said boat in the proximity of said primary propeller, said primary and secondary propellers being vertically aligned,

said hydraulic motor being vertically pivotally mounted with respect to said boat from a first position to a second position whereby actuation of said hydraulic motor in said first position will move said boat forwardly, and actuation of said hydraulic motor in said second position will move said boat rearwardly said first and second positions being at different elevations in the same vertical plane.

4,424,042
PROPULSION SYSTEM FOR AN UNDERWATER VEHICLE

Calvin A. Gongwer, Glendora, Calif., assignor to The Bendix Corporation, Southfield, Mich.

Filed Jul. 23, 1981, Ser. No. 286,127
Int. Cl.³ B63H 1/18, 11/08, 19/06, 23/26
U.S. Cl. 440—44 5 Claims



1. In a propulsion system for an underwater vehicle having a propeller at the rear, a generally circular cross-section and an afterbody smaller in diameter from the maximum cross-section of said vehicle, said system including high pressure gas generating means, and a turbine driven by said high pressure gas characterized in that a series of water intake ducts are located on the surface of said vehicle at said afterbody, a pump is driven by said turbine and intake conduits are connected between said water intake ducts and said pump,

a water discharge conduit connected between said pump and said propeller,

a gas conduit connected between said turbine and said propeller,

said propeller including a plurality of blades, at least some of which have radial water passages connected to said water discharge conduit, water jet nozzles near the tip of said blades for diverting the flow of water in an essentially tangential path from said tips to accelerate the water thereby providing a reaction force to rotate said propeller,

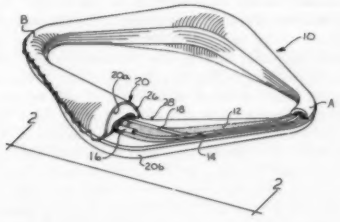
gas flow passages connected to said gas conduit for discharging gas flow into a low pressure region adjacent said blades,

and ports in said water discharge conduit permitting water to squirt into said gas conduit downstream of said turbine to condense condensable materials in said gas and to cool said gas.

4,424,043
FLOTATION DEVICE

Leonard I. Behl, 436 Graystone, Kansas City, Kans. 66103

Filed Aug. 10, 1981, Ser. No. 291,623
Int. Cl.³ B63C 9/10, 9/12
U.S. Cl. 441—81 1 Claim



1. A water recreational device comprising:

a generally curvilinear flotation member presenting a stretched out circle having opposite pairs of rounded corners,

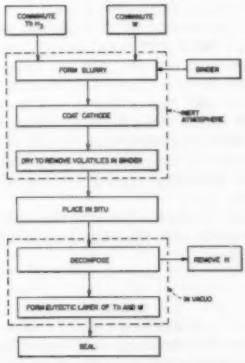
said member having an inner section comprised of a rigid rod extending the length of said inner section and a cross brace extending parallel to and rigid with said rod at said two opposed corners and a body of rigid resinous foam encasing said rod and said cross braces, said body having a larger cross section at two opposed corners relative to the cross section at the other corners and characterized by an ability to support the weight of at least one person,

said member having an outer section overlying said inner section and characterized by first and second inflatable compartments enclosing said inner section and generally following the contour of said inner section, said compartments being joined together.

4,424,044
METHOD OF FABRICATING CATHODE ELECTRODES

Lawrence C. Pitman, Sudbury, and Charles L. Toomey, Danvers, both of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Apr. 23, 1982, Ser. No. 371,151
Int. Cl.³ H01J 9/04
U.S. Cl. 445—35 6 Claims



1. In the fabrication of an electron discharge device, the method of making a cathode electrode, such method comprising the steps of:

(a) mixing, in an inert atmosphere, comminuted tungsten and thorium hydride in a binder to produce a slurry;

(b) shaping the slurry in the form of the desired cathode electrode and drying to remove the volatiles in the binder to form a partially cured cathode electrode;

(c) placing the partially cured cathode electrode in situ in the electron discharge device;

(d) decomposing, in vacuo, the thorium hydride to form thorium and hydrogen and to drive off all remaining traces of the binder;

(e) heating, in vacuo, the partially cured cathode electrode to form, on particles of tungsten, an eutectic mixture of thorium and tungsten; and

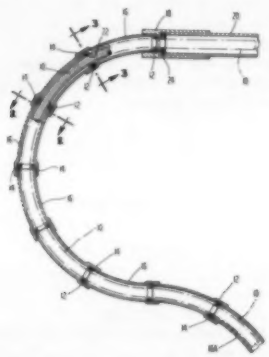
(f) sealing the electron discharge device to maintain a vacuum therein.

4,424,045

RIGID HIGH SPEED FLEXIBLE SHAFT CASING ASSEMBLY FOR TIGHT RADII INSTALLATIONS

Walter Kulischenko, East Brunswick, N.J., and Martin J. Capdevielle, Staten Island, N.Y., assignors to Pennwalt Corporation, Philadelphia, Pa.

Filed May 24, 1982, Ser. No. 381,252
Int. Cl.[3] F16C *3/035, 35/00*
U.S. Cl. 464—52 9 Claims



1. Rigid power driven flexible shaft casing assembly for use in permanent installations requiring tight radius bends, said assembly comprising

a rotatable flexible shaft,

casing means encasing said flexible shaft along length of said bends, said casing means comprising

a plurality of interconnected rigid curved tubular members each having a flared portion and unflared portion at opposite ends thereof, said unflared portions being frictionally received within flared portions of an adjacent tubular member and rotatable 360° therewithin to enable said tight radius bends to be routed along different planes, said flared portions and unflared portions being devoid of taper,

a bearing member securely disposed within each of said flared portions for providing bearing surfaces for said rotatable flexible shaft, and

coupling means provided adjacent ends of said bends for coupling said rigid flexible shaft casing assembly to driving and driven members.

4,424,046

FLEXIBLE COUPLING

Günther Ziegler, Waldkraiburg, Fed. Rep. of Germany, assignor to SGF Suddeutsche Gelenkscheibenfabrik, GmbH & Co. KG, Waldkraiburg, Fed. Rep. of Germany

Filed Oct. 6, 1980, Ser. No. 194,584
Int. Cl.[3] F16D *3/68*
U.S. Cl. 464—74 3 Claims

2. A flexible shaft-coupling comprising:

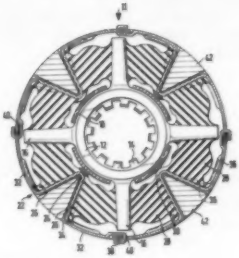
(a) a hub, said hub being adapted to receive a first shaft;

(b) at least three spaced arms extending from said hub;

(c) a plurality of radial projections equal in number to said arms, said radial projections being disposed, respectively, between said arms, said radial projections including two legs converging radially inward to a crest to form a V-shaped cavity therebetween, each of the legs extending outwardly and ending in a wing portion protruding circumferentially, a tab on one wing portion engaging a cut-out on an abutting wing portion of an adjacent radial projection for connection thereto;

(d) a plurality of elastic intermediate pieces disposed between each said leg and the adjacent arm and connected to said leg and said arm such that connection of the wing portions of the radial portion is operative to prestress the elastic pieces in the circumferential direction; and

(e) driver means comprising inwardly projecting members



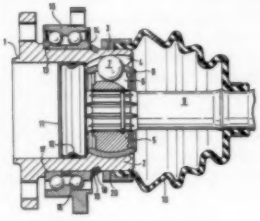
for engaging the V-shaped cavities of said radial projections by a sliding fit therein and having a cross-section that diminishes radially inward, said driver means being connected to a shaft for rotation therewith.

4,424,047

WHEEL BEARING ASSEMBLY

Hans-Heinrich Welschof, Rodenbach, and Rudolf Beier, Offenbach am Main, both of Fed. Rep. of Germany, assignors to Löhr & Bromkamp GmbH, Offenbach am Main, Fed. Rep. of Germany

Filed Nov. 6, 1981, Ser. No. 319,051
Claims priority, application Fed. Rep. of Germany, Nov. 11, 1980, 3042449
Int. Cl.[3] F16C *33/00;* F16D *3/24*
U.S. Cl. 464—145 5 Claims



1. Wheel bearing assembly such as used on a motor vehicle and arranged to be attached to a wheel carrier of the motor vehicle comprising a wheel hub including an axially extending tubular part having an axially extending inner surface and an axially extending outer surface, a rotary constant velocity joint arranged to drive said wheel hub, said tubular part having a first end and a second end spaced apart in the axial direction, a bearing located on the outer surface of said tubular part and including an outer bearing ring arranged to be connected to the wheel carrier of the motor vehicle, an inner bearing ring located within said outer bearing ring and comprising a first ring part and a second ring part arranged in contacting relation one following the other in the axial direction of said tubular part, said constant velocity joint including an outer joint member and an inner joint member, said outer joint member is formed integrally with said tubular part and is located adjacent the second end of said tubular part, the outer surface of said tubular part forming an annular shoulder facing toward the second end of said tubular part, said first ring part bearing against said shoulder on said tubular part, an annular groove formed in the outer surface of said tubular part between said shoulder and the second end of said tubular part, a retaining ring fitted within said groove in the outer surface of said tubular part and bearing

against said second ring part for pressing said second ring part against said first ring part and pressing said first ring part against said shoulder, said ring comprising at least two surfaces extending angularly of one another and said surfaces extending angularly of the axis of tubular part, and said retaining ring is formed of a plastically deformable material so that after said retaining ring is plastically deformed as it is pressed into said groove, said ring produces a pretensioning effect on said ring parts.

4,424,048

FRONT DERAILLEUR FOR A BICYCLE HAVING HORIZONTALLY POSITIONED LINKAGE MEMBERS

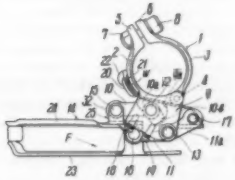
Keizo Shimano, Sakai, Japan, assignor to Shimano Industrial Company Limited, Osaka, Japan

Filed Jun. 2, 1981, Ser. No. 269,611

Claims priority, application Japan, Jun. 17, 1980, 55-84977[U]; Sep. 24, 1980, 55-136298[U]; Sep. 24, 1980, 55-136299[U]

Int. Cl.³ F16H 7/22

U.S. Cl. 474—82 9 Claims



1. A front derailleur which is mounted on a seat tube of a bicycle for switching a driving chain to one of a plurality of front chain gears by operation of a control wire, said front derailleur comprising:

a base member fixed to said seat tube and having a mount which extends radially outwardly and horizontally with respect to said seat tube;

. and second pivot shafts supported to said mount at said base member and having their axes extending substantially vertically respectively;

a pair of linkage members disposed longitudinally of said bicycle with respect to said seat tube and extending horizontally and pivoted at the front portions thereof swingably to said mount through said first and second pivot shafts respectively;

third and fourth pivot shafts supported to the rear portions of said linkage member and having their axes extending substantially vertically respectively; and,

a chain guide pivoted swingably to the rear portions of said linkage members through said third and fourth pivot shafts.

4,424,049

POWER TRANSMISSION BELT WITH DRIVE BLOCKS

Kenneth A. Braybrook, Letchworth, England, assignor to Borg-Warner Corporation, Chicago, Ill.

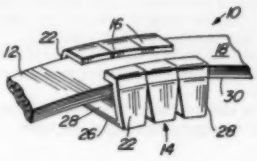
Continuation of Ser. No. 167,261, Jul. 9, 1980, abandoned. This application Aug. 16, 1982, Ser. No. 408,299

Int. Cl.³ F16G 51/80, 1/00, 5/00

U.S. Cl. 474—201 2 Claims

1. A power transmission drive belt especially adapted for use in a pulley transmission in which the pulleys are each constructed of a pair of flanges, said belt comprising at least one continuous metal band having inner and outer surfaces and a plurality of drive blocks in a continuous array along and connected to said metal band, each drive block having opposed end surfaces for drivingly engaging the pulley flanges.

each drive block having a hollow body elongated in the transverse direction of said band with front and rear sides, ends adapted to drivingly engage the pulley flanges, a top and a bottom, the top of each block body being in contact with said inner surface of the band and the bottom of each block body being free of contact with said band, and



integral tab-like ear members overlying the outer surface of the band and forming the connection of each block and the band.

4,424,050

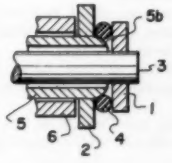
OIL-SEALED ROLLER CHAIN

Yoshimasa Sato, Ishikawa, Japan, assignor to Enuma Chain Manufacturing Co., Ltd., Japan

Continuation of Ser. No. 56,841, Jul. 12, 1979. This application Mar. 20, 1981, Ser. No. 245,881

Int. Cl.³ F16G 13/02

U.S. Cl. 474—231 2 Claims



1. A roller chain of the type having an elastic annular member fitted adjacent each end of a pin and between a pin link plate and a roller link plate for sealing lubricating oil present in the space between the pin and a bushing, which comprises the bushing being extended on each end thereof so as to form an extended portion projecting outwards from the roller link plate, said extended portion being provided with a tapered face on the outer periphery thereof, the annular member being fitted on said outer periphery so as to be in contact with said tapered face and maintained in lightly pressurized contact with the pin link plate and the roller link plate, and said extended portion of the bushing being projected by a length slightly smaller than, preferably of from three quarters to four-fifths of, the diameter of the cross-section of said elastic annular member.

4,424,051

METHOD AND APPARATUS FOR MANUFACTURING AN AGRICULTURAL BAG

Richard H. Lee; Steven R. Cullen, both of Astoria, Oreg.; Eddie H. Bailen, Omaha, Nebr.; David H. Rasmussen, Arlington, Nebr., and William C. Johnson, Omaha, Nebr., assignors to Ag-Bag Corporation, Astoria, Oreg.

Continuation of Ser. No. 37,882, May 10, 1979, abandoned. This application Jan. 26, 1982, Ser. No. 342,842

Int. Cl.³ B31B 23/02

U.S. Cl. 493—37 7 Claims

1. A method of manufacturing an agricultural storage bag, comprising the steps of:

providing first and second supplies of flexible tubular material located on opposite sides of a ring member with a frame extending to a table on the side of the ring on which the first supply is located;

extending tubular material from the first supply through the inside of the frame and the center of the ring member;
turning the tubular material from the first supply outwardly around the ring member;
extending tubular material from the second supply about the outside of the ring member and over the tubular materials from the first supply turned therearound;
simultaneously advancing tubular materials from the first and second supplies over the ring member and outside of the frame;
collecting the tubular materials in a folded condition and in an annular configuration against the table;

measuring the length of the first and second tubular materials as they are advanced;
interrupting advancement of the first and second tubular materials responsive to a predetermined length of said materials having been advanced;
circumferentially cutting said first and second tubular materials to form a two-ply storage bag of preselected length; and
thereafter separating the frame from the table to permit removal of the folded two-ply storage bag.

4,424,052

DRIVE SYSTEM FOR BLADES FOR FOLDING FLAT MATERIAL

Christian Grüger, Bennewitz, German Democratic Rep., assignor to Veb Polygraph Leipzig Kombinat Fuer Polygraphische Maschinen und Ausruestungen, Leipzig, German Democratic Rep.

Continuation of Ser. No. 157,631, Jun. 6, 1980, abandoned, which is a continuation-in-part of Ser. No. 48,355, Jun. 14, 1979, abandoned. This application Apr. 30, 1982, Ser. No. 374,601
Claims priority, application German Democratic Rep., Jun. 22, 1978, 206202
Int. Cl.³ B65H *45/18*
U.S. Cl. 493—444 **7 Claims**

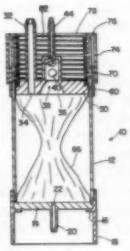
1. A drive system for folding blades for folding flat material, particularly paper, comprising rotary drive means having a drive shaft and a universal shaft; transmission means cooperating with a folding blade and operatively connected to said universal shaft, said transmission means being adapted to convert rotary motion of said drive means into linear motion and to impart said linear motion to said folding blade; said drive means further including an output shaft connected to said transmission means, a first universal joint having a yoke and interconnected between said drive shaft and said universal shaft, the yoke of said universal joint and said drive shaft extending in different planes which intersect one another forming an angle of intersection, a second universal joint having a second yoke and interconnected between said universal shaft and said output shaft, the yoke of said first universal joint and the yoke of said second universal joint extending in different planes, which intersect one another forming an angle of intersection; means orienting said first and second universal joints to produce an irregular angular velocity during a single revolution of said drive shaft, whereby said irregular angular velocity is transmitted to said folding blade via said transmission means to produce variations in the folding action of said folding blade; and means connected to said drive shaft and operative for changing a relative position of said drive shaft to said output shaft.

4,424,053

DISPOSABLE AUTOTRANSFUSION DEVICE

Leonard D. Kurtz, Woodmere, and Joseph LiCausi, Port Jefferson Station, both of N.Y., assignors to BioResearch Inc., Farmingdale, N.Y.

Filed Aug. 5, 1981, Ser. No. 290,666
Int. Cl.³ A61M *35/00*
U.S. Cl. 604—4 **11 Claims**



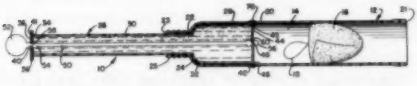
1. An autotransfusion device for collecting blood from a pool in a patient and for subsequently returning the collected blood to the circulatory system of the patient comprising:
a liquid collection chamber having a movable end wall, a stationary end wall and a flexible and collapsible side wall connecting said end walls;
aspirator means for connecting said collection chamber to the pool in the patient;
suction means including a port into said collection chamber for connecting the collection chamber to a source of negative pressure;
discharging means for resiliently urging said movable wall towards said stationary wall; and
locking means for releasably locking said movable wall spaced from said statinary wall while the liquid chamber is being filled; and
return means for connecting the collection chamber to the circulatory system of the patient such that said suction means draws blood from the pool through said aspiratory means until said collection chamber is adequately filled and subsequently said discharging means is released to force the collected blood back to the circulatory system through said return means.

4,424,054

FLUID-EXPANSIBLE CONTRACEPTIVE TAMPON AND APPLICATOR

Shepard Conn, Metuchen, N.J., and Arnold Kushner, Queens, N.Y., assignors to KCDP Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 906,984, May 17, 1978. This application May 29, 1981, Ser. No. 268,381
Int. Cl.³ A61F *15/00*
U.S. Cl. 604—11 **19 Claims**



1. An apparatus for intravaginally expelling an activated tampon comprising:

a tampon storing member defining a chamber for receiving and storing therein said tampon in a quiescent unactivated state, said tampon being activated by a fluid;

a reservoir member storing said fluid therein separate from and out of contact with said tampon;

manually-activatable means for releasing said fluid from the reservoir member to activate the tampon with said fluid while the tampon is retained in said tampon storing member prior to intravaginal insertion; and

means, including the structural cooperation of said tampon storing member and said reservoir member, for intravaginally expelling said tampon in its activated state from said apparatus into a vagina, wherein

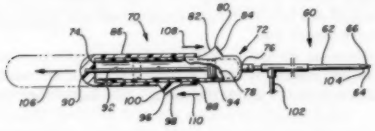
said fluid releasing means includes means for effecting fluid flow through a dispensing opening and a separate venting opening in said reservoir member.

4,424,055

IRRIGATION AND ASPIRATION SYRINGE

Wesley K. Herman, 7311 Pleasant View Dr., Dallas, Tex. 75231

Filed Dec. 18, 1981, Ser. No. 332,332
Int. Cl.³ A61M *1/00*
U.S. Cl. 604—36 **8 Claims**



1. An irrigation and aspiration syringe comprising:

a hollow cylindrical cartridge extending to a nozzle at one end and an enlarged opening at the opposite end;

means for controlling the axial movement of said cartridge;

a needle secured to the nozzle and having a first passage in fluid communication with the hollow chamber of the cylindrical cartridge and a second passage for connection to a source of irrigation fluid for irrigation;

a plunger having a disk dimensioned to closely engage and slide within the hollow cylindrical cartridge, and a rod for controlling the movement of the disk within said cartridge;

an outer sleeve dimensioned to receive said cartridge; said sleeve including an open end for receiving the open end of said cartridge and means for connecting said rod of said disk to the opposite end of said sleeve; and

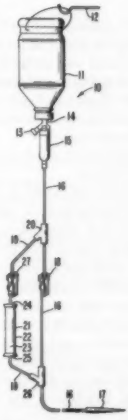
means for controlling the axial movement of said outer sleeve, whereby said means for controlling axial movement of said cartridge and said means for controlling the axial movement of said outer sleeve permit selective axial movement of said outer sleeve relative to said hollow cylindrical cartridge with one hand while maintaining the needle in the desired position for irrigation and aspiration, movement of said sleeve along said cartridge to withdraw said plunger from said cartridge creating a vacuum at said nozzle end for aspirating material into said hollow chamber of said cartridge, movement of said sleeve along said cartridge to move said plunger into said cartridge reducing the vacuum at the nozzle to control the rate of aspiration.

4,424,056

PARENTERAL ADMINISTRATION

John Urquhart, Palo Alto, and Felix Theeuwes, Los Altos, both of Calif., assignors to Alza Corporation, Palo Alto, Calif.

Filed Nov. 27, 1981, Ser. No. 325,204
Int. Cl.³ A16M *5/14*
U.S. Cl. 604—56 **38 Claims**



1. A parenteral delivery system for administering a beneficial agent formulation to an animal, the system comprising in combination:

(a) a reservoir of a pharmaceutically acceptable fluid;

(b) a primary flow path in communication with the reservoir for the flow of fluid from the reservoir to the animal;

(c) a parallel flow path in communication with the primary path for the flow of fluid therethrough;

(d) a formulation chamber in the parallel path, the formulation chamber comprising:

(1) a wall surrounding a lumen;

(2) an inlet in the wall that communicates with the parallel path for letting fluid into the formulation chamber;

(3) a beneficial agent in the formulation chamber in an effective amount for performing a beneficial program, which beneficial agent forms an agent formulation with fluid that enters the formulation chamber;

(4) a film formed of a release rate controlling polymer for governing the rate of release of beneficial agent from the formulation chamber at the outlet of the formulation chamber; and,

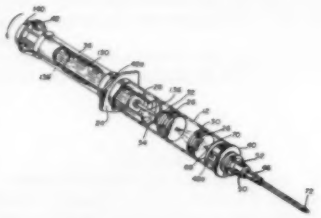
(5) an outlet in the wall that communicates with the parallel path which path communicates with the primary path for delivering agent formulation from the formulation chamber into the primary path for administration to the animal.

4,424,057

WET-DRY SYRINGE

Hugh A. House, 159 Lincoln Rd., Wenonah, N.J. 08090

Filed Apr. 1, 1982, Ser. No. 364,496
Int. Cl.³ A61M 5/22
U.S. Cl. 604—88 9 Claims



1. A wet-dry syringe for combining and mixing a liquid and a solid medicament or at least two dissimilar liquid medicaments prior to the application thereof to a patient comprises, in combination:

(a) an enlongated cylindrically-shaped vial having outwardly extending lip portions proximate each end thereof and a pair of identical vial seals disposed within said cylinder, said vial seals being in intimate frictional contact with the internal walls of said vial and slidable therealong, said vial seals being adapted to retain a first liquid or said solid medicament therebetween;

(b) cap means adapted to be received on each end of said vial to maintain its sterility;

(c) elongated cylindrically-shaped piston rod means; said piston rod means being hollow and including;

(i) a first piston rod seal disposed proximate one end thereof, said first piston rod seal being in intimate frictional contact with the internal walls of said piston rod means and slidable therealong;

(ii) a second piston rod seal being disposed proximate the other end of said piston rod means in a fixed position, said first and said second piston rod seals being adapted to retain a second liquid medicament therebetween;

(iii) hollow needle means disposed proximate said second piston rod seal, said piston rod means being adapted to be received into said vial for contact with one of said pair of vial seals and when urged into contact with said vial seal causing said hollow needle means to provide a fluid flow path for communication of said second liquid medicament with said solid medicament or said liquid medicament disposed within said vial; and

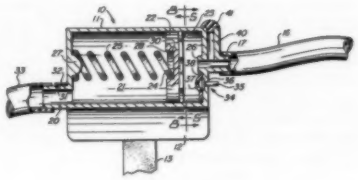
(d) second needle means having one end adapted to be inserted into a patient and the other end thereof adapted to pierce the other of said pair of vial seals and communicate with said mixed medicaments disposed within said vial, said piston rod means causing said mixed medicaments to be discharged through said second needle means when urged in the direction thereof.

4,424,058

DRAINAGE CONTROL METHOD AND APPARATUS

Robert L. Parsons, 1368 Windsong Rd., Orlando, Fla. 32809; Joseph M. Valdespino, 5023 Gold Club Pkwy., Orlando, Fla. 32808; Alan R. Varraux, 5433 Hansel St., Orlando, Fla. 32809; Allen K. Holcomb, 200 W. Gore St., Orlando, Fla. 32806, and William M. Hobby, III, 244 Sylvan Blvd., Winter Park, Fla. 32789

Filed Nov. 23, 1981, Ser. No. 323,957
Int. Cl.³ A61M 27/00
U.S. Cl. 604—118 30 Claims



1. A drainage control valve for use in the drainage of a bladder comprising in combination:

a housing;

pressure relief valve means located in said housing for opening upon a predetermined fluid pressure being applied thereto and including a valve element movably mounted therein;

suction means for holding said valve element open by the weight of a liquid column escaping past said pressure relieve valve means; and

said housing having an offset outlet passageway whereby a suction column is formed when said pressure relief valve means opens to allow the passage of a liquid therethrough.

4,424,059

PROCESS AND COMPOSITIONS FOR PRESERVING FRESH HIDES AND SKINS

William J. Hopkins; Paula C. Sweeney, both of Philadelphia, and David C. Bailey, Warminster, all of Pa., assignors to The United States of America as represented by the Secretary of Agriculature, Washington, D.C.

Filed Mar. 10, 1982, Ser. No. 356,865
Int. Cl.[3] C14C *9/00, 1/04*
U.S. Cl. 8—94.18 8 Claims

1. A method of preserving a fresh animal hide comprising treating said hide with a fresh hide preserving effective amount of a hide preservative and a carrier, said hide preservative being selected from the group consisting of diethylene glycol monobutyl ether, diethylene glycol monobutyl ether acetate, diethylene glycol diethyl ether, butoxy triglycol, and butoxy ethoxy propanol and said method providing, with no drying steps required in the process, a preserved hydrated hide in condition for processing into leather.

4,424,060

METHOD FOR TREATING FABRIC TO IMPART WASHFAST AND ANTIBIOSIS THERETO

Shinichi Nakamura, 8-505 Satsukigaoka 1-Chome, 29 Gaiku, Chiba-Shi, Chiba-Ken; Riuzo Huzita, 14-2 Higashi Ohwada 2-Chome,, Ichikawa-shi, Chiba-Ken; Iwao Kamitani, 16-10 Higashi Ohgu 5-Chome,, Arakawa-Ku, Tokyo, and Tetsuma Maeda, 1519-12 Kamiyabe-Cho, Totsuka-ku,, Yokohama-Shi, Kanagawa-Ken, all of Japan

Filed Dec. 2, 1982, Ser. No. 446,359
Claims priority, application Japan, Dec. 2, 1981, 56-192796
Int. Cl.[3] D06M *13/48, 3/02, 1/00, 3/30*
U.S. Cl. 8—115.5 12 Claims

1. A method for treating a fabric by the combined use of at least one of a sterilizing compound and a mould retardation compound and a permanent water repellent and softening compound having the general formula:

wherein R is $C_{2\text{-}18}$ alkyl group so as to impart said fabric with washfast and antibiosis which are maintained even after repeated washings.

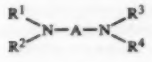
4,424,061

COLOR FASTNESS OF DYED COTTON TEXTILES TO CHLORINATED WATER AND PROCESS FOR IMPROVING THE COLOR FASTNESS OF DYED COTTON TEXTILES TO CHLORINATED WATER

Yoshiyuki Shimohiro, Sakai; Akio Murata, Kusatsu, and Chiyoko Nisioka, Toyonaka, all of Japan, assignors to Dainippon Pharmaceutical Co., Ltd., Osaka, Japan

Filed Feb. 17, 1982, Ser. No. 349,673
Claims priority, application Japan, Feb. 27, 1981, 56-28979; Feb. 27, 1981, 56-28980; Dec. 29, 1981, 56-211639
Int. Cl.[3] D06P *5/22, 5/02*
U.S. Cl. 8—493 11 Claims

1. An agent for improving the fastness to chlorine of dyed cotton textiles which comprises a mixture of a diamine or a salt thereof and a hydrolyzable tannin, said diamine having the following general formula:



or a salt thereof

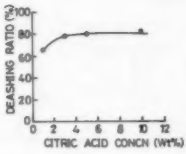
wherein R^1 is Z—, Z—O—, Z—CO—, Z'—O—Z''— or Z'—CO—Z''— in which Z is a higher aliphatic hydrocarbon group having 7 to 20 carbon atoms, and Z' and Z'' are an aliphatic hydrocarbon group and at least one of Z' and Z'' is a higher aliphatic hydrocarbon group, R^2 is the same as R^1 or is benzyl group, $HOCH_2CH_2$—, $H_3C(OH)CHCH_2$— or hydrogen, R^3 and R^4 are the same or different and each is $HOCH_2CH_2$—, $H_3C(OH)CHCH_2$— or hydrogen, and A is a straight or branched lower alkylene group.

4,424,062

PROCESS AND APPARATUS FOR CHEMICALLY REMOVING ASH FROM COAL

Yasumi Kamino; Shigenori Onitsuka; Takanobu Watanabe, and Katsuyuki Yano, all of Osaka, Japan, assignors to Hitachi Shipbuilding & Engineering Co., Ltd., Osaka, Japan

Filed Mar. 9, 1982, Ser. No. 356,337
Claims priority, application Japan, Mar. 13, 1981, 56-37117; Mar. 30, 1981, 56-47662; Apr. 15, 1981, 56-57426; Apr. 15, 1981, 56-57427
Int. Cl.[3] C10L *9/02*
U.S. Cl. 44—1 SR 3 Claims



1. A process for chemically removing ash from coal comprising the steps of immersing finely divided ash-containing coal in an aqueous deashing solution containing an acid selected from the group consisting of hydrochloric acid and citric acid, and acidic ammonium fluoride to cause the ash to react with the acid and the acidic ammonium fluoride in the aqueous solution, and separating deashed fine coal particles from the aqueous solution.

4,424,063

HIGH FLASH POINT ADDITIVES OR COMPOSITIONS FOR GASOLINE AND DIESEL FUELS

Rien 'T Hart, Rotterdam-Botlek, Netherlands, assignor to XRG International, Inc., Stuart, Fla.

PCT No. PCT/US80/01530, § 371 Date Mar. 10, 1981, § 102(e) Date Mar. 10, 1981, PCT Pub. No. WO82/01718, PCT Pub. Date May 27, 1982
PCT Filed Nov. 17, 1980, Ser. No. 304,989
Int. Cl.[3] C10L *1/22*
U.S. Cl. 44—56 6 Claims

1. A high flash point agent for gasoline comprising elemental iron, methyl isobutyl ketone, picric acid, normal butyl alcohol, kerosene, nitrobenzene, and a Primene which is a tertiary alkyl amine which is a cross of primary aliphatic amines of the general formula $R_1(R_2)(R_3)CNH_2$ in which the amino group is linked to a tertiary carbon atom.

4,424,064

METHANE PRODUCTION FROM AND BENEFICIATION OF ANAEROBIC DIGESTION OF AQUATIC PLANT MATERIAL

Donald L. Klass, Barrington, and Sambhunath Ghosh, Homewood, both of Ill., assignors to United Gas Pipe Line Company, Houston, Tex.

Filed May 22, 1980, Ser. No. 152,335
Int. Cl.[3] C02F *3/28, 3/32*
U.S. Cl. 48—197 A 18 Claims

1. A process for improved methane production by anaerobic digestion comprising anaerobic digestion for more than about four days detention time of aquatic plant material, at least a

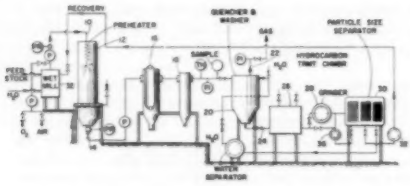
portion of which has been grown in organically polluted water, and removal of methane containing gas from the digestion zone, said aquatic plant portion which has been grown in organically polluted water comprising over about 10 weight percent on a dry solids basis of the total aquatic plant material.

4,424,065

METHOD FOR THE GASIFICATION AND PREPARATION OF A WATER-CARBON SLURRY

Josef Langhoff, Kleinbergerhof 10, 4220 Dinslaken, and Jürgen Seipenbusch, Falterweg 17, 4300 Essen 14, both of Fed. Rep. of Germany

Continuation-in-part of Ser. No. 198,609, Oct. 20, 1980, abandoned, Continuation of Ser. No. 28,193, Apr. 9, 1979, abandoned. This application Sep. 14, 1981, Ser. No. 302,047
Claims priority, application Fed. Rep. of Germany, Apr. 8, 1978, 2815329
Int. Cl.³ C10J 3/46
U.S. Cl. 48—197 R 19 Claims



1. A method in gasification of a feed-stock containing water-carbonaceous material slurry comprising the following steps:

a. reacting a water-carbonaceous material slurry with oxygen in a reactor to form a product gas containing solid material comprising unburnt carbon particles and ash;

b. removing said product gas and said solid material from the reactor;

c. treating said gas and solid material with water to remove the solid material from the gas and to form a slurry of water and the solid material;

d. treating said slurry of water and solid material with an oil additive to cause oil-wetting and cause particulate agglomeration of particulate carbon in said solid material, and consequently to facilitate separating ash from said unburnt carbon particles;

e. separating agglomerated unburned carbon particles having a predetermined mesh size range from said slurry such that the carbon particles separated have a substantially decreased ash content by admitting the slurry with a horizontal velocity into a container for separation of particulate sizes, using substantially vertical baffles in the container; and

f. feeding back the separated carbon particles of said predetermined mesh size to the reactor for being reintroduced into the reactor with the feed stock, whereby abrasive wear in the reactor is reduced because of reduced ash feedback in the carbon fed back to be mixed with the feed stock.

4,424,066

ALUMINA COATED COMPOSITE SILICON ALUMINUM OXYNITRIDE CUTTING TOOLS

Vinod K. Sarin, Lexington, and Sergej-Tomislav Buljan, Acton, both of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed May 20, 1982, Ser. No. 380,388
Int. Cl.³ B24D 11/00
U.S. Cl. 51—295 12 Claims

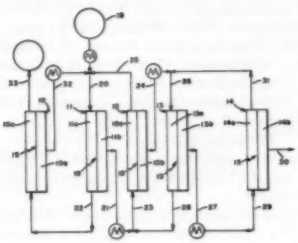
1. A coated abrasion resistant composite ceramic cutting tool comprising a substrate body and at least one adherent alumina coating layer; said substrate body consisting essentially of a particulate material selected from the group consisting of the refractory metal carbides, nitrides, carbonitrides and mixtures thereof uniformly distributed in a matrix comprising a modified silicon aluminum oxynitride, said particulate material comprising from about 5 volume percent to about 60 volume percent of said cutting tool and having an average particle size of between about 0.5 microns and about 20 microns; said modified silicon aluminum oxynitride having a modifier selected from the group consisting of the oxides of silicon, yttrium, magnesium, hafnium, zirconium, beryllium, the lanthanides and combinations thereof.

4,424,067

PURIFICATION OF ANHYDROUS HYDROGEN FLUORIDE

Valentin Tarasenko, Little Ferry, and Harold Edelstein, Fair Lawn, both of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Jul. 29, 1982, Ser. No. 402,869
Int. Cl.³ B01D 53/22
U.S. Cl. 55—16 8 Claims



1. A method of reducing the arsenic trifluoride impurity level in hydrogen fluoride gas which comprises:

(a) introducing on one side of a non-porous polymer film resistant to degradation by fluoride a first gaseous mixture comprising a major proportion of hydrogen fluoride and a minor proportion of arsenic trifluoride, and

(b) recovering from the opposite side of said non-porous polymer film a second gaseous mixture which has diffused through said polymer film, said second gaseous mixture containing a greater proportion of hydrogen fluoride and a lesser proportion of arsenic trifluoride than said first gaseous mixture.

4,424,068

SEPARATOR AND METHOD FOR SEPARATION OF OIL, GAS AND WATER

John F. McMillan, 6421 Alderfer Ave., Odessa, Tex. 79762

Filed Dec. 6, 1982, Ser. No. 447,053
Int. Cl.³ B01D 19/00
U.S. Cl. 55—38 15 Claims

1. A process for separating a mixture of oil, gas, and water comprising the steps of:

(1) progressively increasing the droplet size of the oil and water of said mixture by flowing said mixture in a spiral, and thereafter flowing said mixture linearly into a first separator chamber;

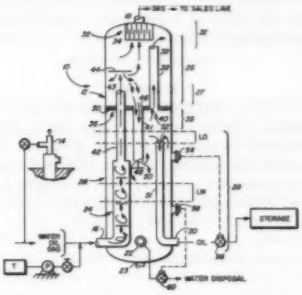
(2) separating gas from the mixture in said first separator chamber by impacting the last said linearly flowing mixture against an impact member, and flowing separated gas upwardly into an upper gas chamber while flowing the residual mixture downwardly through a passageway into an oil, water separation chamber;

(3) forming a gas phase, oil phase, and water phase, respectively, at the upper, medial, and lower elevations, respectively, of said oil, water separation chamber;

(4) connecting said gas phase to said upper gas chamber and

flowing the separated gas away therefrom and to a point of gas collection;

(5) flowing oil which accumulates at said oil phase away



from said oil, water separation chamber and to a point of collection at a rate which maintains said oil phase; and,

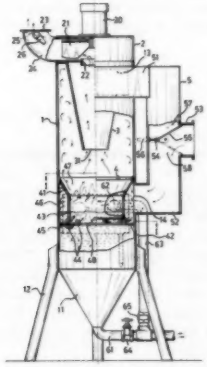
(6) flowing water away from said water phase and to a point of collection at a rate to maintain said water phase.

4,424,069

DRY AND WET DUAL-PURPOSE DUST-COLLECTING DEVICE

Shien-Fang Chang, 55 Chung Cheng Rd., Hsin Ying Chen, Tai-nan Hsien, Taiwan

Filed Aug. 12, 1982, Ser. No. 407,592
Int. Cl.³ B01D *47/02*
U.S. Cl. 55—226 **5 Claims**



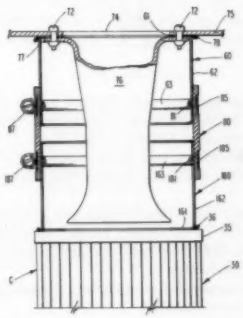
1. A dry and wet dual-purpose dust-collecting device, comprising: an upright cylinder tapered at the lower end to form a funnelshaped settling chamber and formed in its peripheral wall with an upper gas inlet port and a lower gas inlet port; an inner cylinder having a flaring top, a lower end flange, an overflow formed in its peripheral wall, and a plurality of circumferentially spaced tangential cyclone inlets arranged in its peripheral wall spaced below said overflow, said inner cyliner being secured to the lower inside surface of said upright cylinder above said settling chamber such that an annular cyclone passage is defined therebetween; said lower gas inlet port being disposed in that portion of said upright cylinder defining said annular cyclone passage; an exhaust fan mounted in a casing atop said upright cylinder, said casing having an exhaust pipe extending tangentially therefrom and in its bottom surface a vent opening into a hollow cone projecting downward from the upper end of said cylinder and terminating above said inner cylinder; a manifold having a dirty gas inlet, a pair of parallel gas outlets arranged at opposite ends of the manifold and leading to the upper and lower gas inlet ports in said upright cylinder respectively, and a swinging inlet damper disposed adjacent said dirty gas inlet and pivotably mounted in the manifold to selectively prevent passage of dirty gas from the dirty gas inlet to one of said gas outlets; a water tank secured to the outside surface of said peripheral wall of said upright cylinder at a position approximately corresponding to said inner cylinder, said tank having a water inlet connected with a source of water supply, an outlet pipe leading to said settling chamber, and a water level control means therein disposed so as to maintain a water level in said inner cylinder between said cyclone inlets and said overflow; and a drain connected with the bottom of said settling chamber.

4,424,070

DUST COLLECTING FILTER CARTRIDGE AND ATTACHMENT STRUCTURE FOR SUSPENDING SAME FROM BAGHOUSE TUBE SHEET

James W. Robinson, Woodridge, Ill., assignor to Flex-Kleen Corporation, Chicago, Ill.

Filed Nov. 22, 1982, Ser. No. 443,390
Int. Cl.³ B01D *46/04*
U.S. Cl. 55—378 **5 Claims**



1. A combination of:

A. a baghouse tube sheet having a plurality of holes therein;

B. a small-diameter filter cartridge, said cartridge having a metal collar at its upper end; and

C. attachment structure for suspending said filter cartridge from said baghouse tube sheet, said attachment structure comprising:

a. a first cylindrical bag cup having an annular flange and a vertical sidewall having an annular external groove therein;

b. means securing said annular flange of said first bag cup to the under surface of said tube sheet for suspending said bag cup from said tube sheet in registry with one of the holes therein;

c. a second cylindrical bag cup having an annular flange and a vertical sidewall having an annular external groove therein,

d. means securing said annular flange of said second bag cup to upper end of said filter cartridge;

e. a tubular sleeve embracing the lower portion of said first bag cup which includes said annular groove, said sleeve having an internal annular bead forming an upper detent positioned within the annular groove of said first bag cup, said sleeve extending downwardly beyond the lower end of said first bag cup, said sleeve extension having an internal annular bead forming a lower detent positioned within the annular groove of said second bag cup,

f. said second bag cup with said filter cartridge secured thereto being pushed upwardly into the extension portion

of said sleeve to cause said lower detent to be received within the annular groove of said second bag cup;

g. a first clamp embracing said sleeve at the level of said upper detent; and

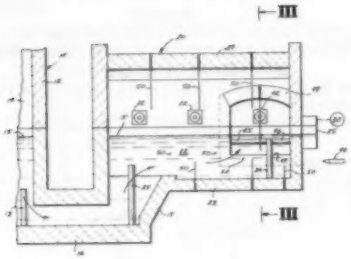
h. a second clamp embracing said sleeve extension at the level of said lower detent.

4,424,071

MOLTEN MASS TEMPERATURE CONDITIONER

William R. Steitz, Toledo, and Richard C. Carle, Grand Rapids, both of Ohio, assignors to Toledo Engineering Co., Inc., Toledo, Ohio

Filed Sep. 27, 1982, Ser. No. 424,426
Int. Cl.³ C03B 5/24, 7/06
U.S. Cl. 65—337 **6 Claims**



1. In a glass forming plant having a furnace for supplying molten and refined glass and a plurality of glass forming machines, each machine having its own forehearth, the improvement comprising a molten glass temperature conditioner between said furnace and said forehearths, said conditioner comprising:

(a) a primary temperature controlling chamber,

(b) a plurality of secondary temperature controlling chambers branching from said primary chamber and connected to each forehearth,

(c) heating means above and below the surface of the molten glass in each chamber,

(d) temperature sensing means above and below the surface of the molten glass in each chamber, and

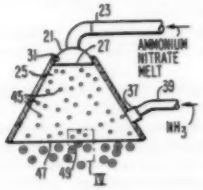
(e) means to control the relative heat input of said heating means by said sensing means to maintain the temperature required for the inlets to each associated forehearth.

4,424,072

PRILLING

Bernard J. Lerner, 727 Orchard Hill Dr., Pittsburgh, Pa. 15238

Filed Jul. 1, 1982, Ser. No. 394,297
Int. Cl.³ C05C 1/02, 9/00
U.S. Cl. 71—28 **7 Claims**



1. The method of operating a prilling tower producing prills of one of the class of materials consisting of ammonium nitrate and urea, the said method including injecting a spray of a melt of said material at a first position of said tower, introducing a stream of air at second position of said tower displaced from said first position, conducting the spray in counterflow relationship to said air to cool said spray and to produce prills, and removing said prills from said tower, the said method being characterized by that the spray is maintained in an atmosphere of gaseous ammonia as it enters the tower to suppress the emission of fumes from the tower.

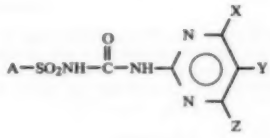
4,424,073

HERBICIDAL SULFONAMIDES

George Levitt, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 130,343, Mar. 14, 1980, Pat. No. 4,342,587, which is a continuation-in-part of Ser. No. 59,152, Jul. 20, 1979, abandoned. This application Apr. 22, 1982, Ser. No. 370,926
Int. Cl.³ A01N 43/54; C07D 239/42
U.S. Cl. 71—92 **38 Claims**

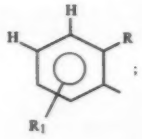
1. A compound selected from:



I

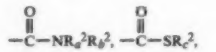
wherein

A is



;

R is CO_2R^2,



$SO_2NR^3R^4$, Cl, CF_3, NO_2 or $S(O)_nR^3$ where n is 0, 1 or 2;

R^1 is H, Cl, F, Br, NO_2, CH_3, OCH_3 or CF_3;

R^2 is C_1–C_6 alkyl, C_3–C_4 alkenyl, C_2–C_3 haloalkyl, C_5–C_6 cycloalkyl, C_4–C_7 cycloalkylalkyl, $CH_2OCH_2CH_2OCH_3$, CH_2—$CH(CH_3)OR^5$ or $(CH_2)_mOR^5$ where m is 1, 2 or 3;

R_a^2 is H, C_1–C_4 alkyl, C_3–C_4 alkenyl or OCH_3;

R_b^2 is H, C_1–C_4 alkyl, C_3–C_4 alkenyl or R_a^2 and R_b^2 can be taken together to form —CH_2—$_5$, —CH_2—$_4$ or —CH_2CH_2—O—CH_2CH_2—;

R_c^2 is C_1–C_4 alkyl or C_3–C_4 alkenyl;

R^3 is C_1–C_4 alkyl or OCH_3;

R^4 is C_1–C_4 alkyl;

R^5 is C_1–C_3 alkyl;

X and Z are independently H, CH_3, Br, Cl, OCH_3, CH_2CH_3, CH_2OCH_3 or OCH_2CH_3; and

Y is F, Cl, Br, I, CH_3, CH_2CH_3, $CH_2CH_2CH_3$, $(CH_2)_3CH_3$, CH_2—CH=CH_2, OCH_3, OCH_2CH_3, CN, CH_2CH_2Cl, $CH_2CH_2CH_2Cl$, $CH_2CH_2OCH_3$, OCH_2OCH_3, CH_2OCH_3, $OCH_2CH_2OCH_3$, $CH_2CO_2R^6$, $CH_2CH_2CO_2R^6$, CO_2R^6,

or NO;

R^6 is CH_3 or CH_2CH_3;

and their agriculturally suitable salts; provided that:

(1) when R_6^2 is OCH_3, then R_5^2 is CH_3;
(2) when R^3 is OCH_3, then R^4 is CH_3; and
(3) when R is Cl, then Y is F.

29. A method for the control of undesirable vegetation comprising applying to the locus of such undesirable vegetation a herbicidally effective amount of a compound of claim 1.

4,424,074

ADDITIVES FOR CEMENTITIOUS COMPOSITIONS

Jose L. Villa, Bridgewater; Joseph V. Sinka, Mendham; Alphonso W. Marcellis, Boonton, and Joseph P. Fleming, East Brunswick, all of N.J., assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed Aug. 24, 1982, Ser. No. 411,033
Int. Cl.³ C04B 7/35
U.S. Cl. 106—90 13 Claims

1. A superplasticizer for cementitious materials comprising a mixture of from about 65 to about 75 parts by weight of a salt of a condensation product of naphthalenesulfonic acid and formaldehyde and from about 25 to about 35 parts by weight of a zinc salt.

4,424,075

IMPREGNATING COMPOSITIONS FOR CELLULOSE CONTAINING MATERIALS

Werner Schmidt, Augustin, Fed. Rep. of Germany, assignor to Dynamit Nobel AG, Troisdorf, Fed. Rep. of Germany

Filed Feb. 23, 1982, Ser. No. 351,423
Claims priority, application Fed. Rep. of Germany, Feb. 24, 1981, 3106748
Int. Cl.³ C09K 3/00; C08G 2/00
U.S. Cl. 106—287.12 9 Claims

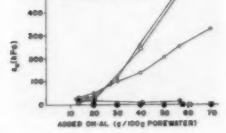
1. Composition for impregnating cellulose-containing materials, which composition comprises an aqueous or aqueous alcohol solution of a mixture of an alkali aluminate and at least one alkyl silanol wherein the alkyl is selected from ethyl, propyl and n-butyl.

4,424,076

STABILIZING CLAY WITH HYDROXY-ALUMINUM AND BASE

Marion G. Reed, Hacienda Heights, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Nov. 1, 1982, Ser. No. 438,545
Int. Cl.³ C04B 33/13; C09K 3/00, 17/00
U.S. Cl. 106—287.17 1 Claim



1. A method of stabilizing quick clay containing less natural base than required for effective reaction with hydroxy-aluminum to stabilize the clay soil comprising determining an effective amount of hydroxy-aluminum to stabilize said clay soil, determining the natural base content of the quick clay, determining the minimum amount of base needed for effective reaction with said effective amount of hydroxy-aluminum, forming a mixture of hydroxy-aluminum and at least said minimum amount of base minus said natural base, and mixing said mixture with said quick clay to gel water contained in said quick clay to stabilize said clay.

4,424,077

PROTECTIVE FILM FOR METALLIC ARTICLES

Miroslav Novak, Prague, Czechoslovakia, assignor to Statni vyzkumny ustav materialu, Prague, Czechoslovakia

Filed Aug. 20, 1982, Ser. No. 410,071
Claims priority, application Czechoslovakia, Aug. 20, 1981, 6226-81
Int. Cl.³ C09D 5/38
U.S. Cl. 106—290 3 Claims

1. A protective film for metallic articles, used as a protective coating against penetration of nitrogen, carbon and boron at a chemical-heat treatment by means of glow discharge plasma at a temperature ranging from 450° to 950° C., consisting of a colloidally dispersed mixture of tin and lead absorbed on titanium dioxide containing 35 to 60% by weight of colloidally dispersed tin, 5 to 10% by weight of colloidally dispersed lead, 10 to 23% by weight of titanium dioxide, 5 to 10% by weight of a binding agent, and the remainder is an organic solvent.

4,424,078

METHOD FOR IMPROVING THE CARBONATION PROCEDURE IN A SUGAR PLANT

Hubert Schiweck, Worms, and Günter Witte, Obrigheim, both of Fed. Rep. of Germany, assignors to Suedeutsche Zucker-Aktiengesellschaft, Mannheim, Fed. Rep. of Germany

Continuation of Ser. No. 151,654, May 20, 1980, abandoned.
This application Aug. 6, 1982, Ser. No. 406,092
Claims priority, application Fed. Rep. of Germany, Jun. 22, 1979, 2925283
Int. Cl.³ C13D 3/06
U.S. Cl. 127—50 2 Claims

1. In a two-stage process for carbonating lime-treated juice in a sugar plant, said process comprising a first carbonation stage and a second carbonation stage, the improvement comprising: (a) recycling exhaust gas from the second carbonation stage to the first carbonation stage such that the amount of carbonation gas required in the two carbonation stages is reduced by 8 to 16 percent; and (b) cooling the exhaust gas from the first carbonation stage and/or the exhaust gas from the second carbonation stage while recovering the heat content thereof.

4,424,079

RUST REMOVAL PROCESS

Eugene S. Barabas, Watchung, N.J., assignor to GAF Corporation, New York, N.Y.

Filed Mar. 31, 1982, Ser. No. 364,000
Int. Cl.³ B08B 7/00
U.S. Cl. 134—4 6 Claims

1. Process for removing rust from a rusty metal surface which comprises:

(a) applying to said rusty surface a layer of rust removal coating composition consisting essentially of an aqueous solution of a copolymer of N-vinyl-2-pyrrolidone and maleic acid; and

(b) allowing said layer of coating composition to dry whereby rust becomes incorporated into said layer and the layer containing the rust detaches itself from the surface.

4,424,080

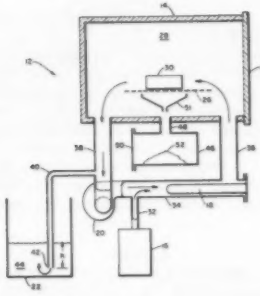
PROCESS FOR HYDROLYSIS REMOVAL OF CONDENSATION POLYMER FROM VARIOUS OBJECTS

Frank Days, Peabody, Mass., assignor to Beringer Co., Inc., Marblehead, Mass.

Filed Apr. 13, 1982, Ser. No. 367,904
Int. Cl.³ B08B 3/00
U.S. Cl. 134—5 6 Claims

1. A process for removing from an object a coating of condensation polymer of the type that is decomposable by hydrolysis, including the steps of

placing the object within a vessel forming a confined space,
purging said space of air by producing a flow of steam into and through the vessel,
and producing an hydrolysis reaction in the polymer by causing superheated water vapor to flow into and through



the vessel and in flowing contact with the surface of said coating, said vapor being at a temperature sufficient to melt said coating at said surfaces and to produce a gravity-induced drippage of molten polymer from the object, thereby causing fresh surfaces of the coating to be subjected to the hydrolysis reaction.

4,424,081

RECONDITIONING SOILS CONTAMINATED BY CRUDE OILS OR OTHER REFINED PETROLEUM PRODUCTS

Marcel L. Giguere, 8255 rue Renard, Brossard, Quebec, Canada J4X 1R6

Division of Ser. No. 155,190, Jun. 2, 1980, Pat. No. 4,336,136. This application Jan. 22, 1982, Ser. No. 341,824
Int. Cl.³ B08B *3/04*
U.S. Cl. 134—10 **7 Claims**

1. A method of reconditioning soils contaminated with crude oils or other refined petroleum products to separate constituent parts of said soils, said method comprising the steps of,

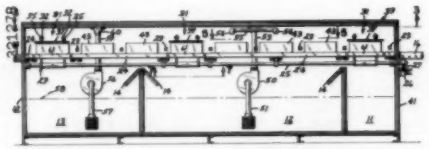
(i) mixing and heating said soils with a liquid to provide a heated blended slurry at an input stage,
(ii) conveying said blended slurry to a sparger kiln of a further stage for further agitating and heating said blended slurry to provide a fine particle slurry,
(iii) further conveying said fine particle slurry to another stage for washing said fine particle slurry to effect a first separation of oil particles from said slurry,
(iv) further conveying said slurry to a further stage for further washing said slurry in flotation cell units to effect a second separation of oil particles from said fine particle slurry,
(v) collecting said liquid mixture with said oil particles,
(vi) further conveying said mixture to a still further stage for subjecting said collected liquid mixture to an aeration clarifier action for separating said oil particles from said mixture,
(vii) collecting said oil particles recovered in steps (iii) and (vi), and
(viii) collecting said mixture which has been substantially decontaminated from said oil and other contaminated materials for safe disposal thereof.

4,424,082

METHOD FOR CLEANING PARTS IN A TOTE BOX

Henry A. Rowan, Watchung, N.J., assignor to Economics Laboratory, Inc., St. Paul, Minn.

Filed Nov. 13, 1981, Ser. No. 321,278
Int. Cl.³ B08B *3/04*
U.S. Cl. 134—25.4 **4 Claims**



1. A method of cleaning contents of an open top tote box consisting essentially of:

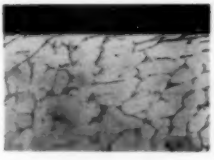
(a) transporting the tote box to a first cleaning station;
(b) flooding the tote box while the tote box is horizontal with a cleaning solution at a first position at the first cleaning station, the cleaning solution having a volume at least twice that of the tote box, whereby the cleaning solution will flow over the open top of the tote box;
(c) indexing the tote box to a second position at the first cleaning station and flooding the tote box while the tote box is horizontal with a cleaning solution, the cleaning solution having a volume at least twice that of the tote box, whereby the cleaning solution will flow over the open top of the tote box;
(d) indexing the tote box to a third position at the first cleaning station and covering the open top of the tote box with a cover having apertures smaller than the contents of the tote box;
(e) rotating the tote box less than 180° to empty any solution in the tote box through the cover, the contents of the tote box being retained in the tote box by said cover; and
(f) removing the cover and transporting the tote box from the first cleaning station;

4,424,083

CARBURIZATION RESISTANCE OF AUSTENITIC STAINLESS STEEL TUBES

Richard S. Polizzotti, Milford, and Richard C. Krutenat, New Providence, both of N.J., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 208,986, Nov. 21, 1980, Pat. No. 4,379,745. This application Dec. 27, 1982, Ser. No. 453,451
Int. Cl.³ C22F *1/11*
U.S. Cl. 148—12 E **18 Claims**



1. A method for enhancing the protection of a cast austenitic stainless steel tube against carburization, the method which comprises:

(a) shot-peening the inner surface of said tube to deform the surface of said tube to such a degree that upon the subsequent heat treatment of step (b) below, dissolution of the $M_{23}C_6$ carbides in the deformed region is accompanied by recrystallization resulting in a refined micrograin structure, in the deformed surface region, to a uniform minimum depth of at least about 20 microns, and

(b) heating the shot-peened inner surface of the tube, for an effective amount of time, at a temperature between its recrystallization temperature and its melting temperature, in an atmosphere which is at least oxidizing with respect to chromium,

wherein the cast austenitic stainless steel tube comprises about; 17 to 40 wt.% chromium, 15 to 50 wt.% nickel, and 0.6 to 4 wt.% silicon, based on the total weight of the alloy.

4,424,084

ALUMINUM ALLOY

Matthew F. Chisholm, Pittsburgh, Pa., assignor to Reynolds Metals Company, Richmond, Va.

Continuation-in-part of Ser. No. 180,365, Aug. 22, 1980, abandoned. This application Aug. 31, 1981, Ser. No. 297,873

Int. Cl.³ C22C *21/14*

U.S. Cl. 148—417 **6 Claims**

1. An aluminum base alloy consisting essentially of about 0.9–1.4% Cu, 0.5–1.3% Si, 0.4–1.0% Mg, 0.1–0.4% Mn, up to about 0.6% Fe, 0.2% Cr, 0.5% Zn, 0.15% Ti and up to 0.15% other elements which each individually do not exceed 0.05% in concentration, balance aluminum; said alloy having been aged to the —T6 temper in an aging cycle which comprises exposure to a temperature of between about 350° F. and about 450° F. for a period of between about 10 and about 40 minutes, to thereby produce an alloy characterized by excellent formability, resistance to corrosion and yield strength above 45 ksi.

4,424,085

COMPOSITE SOLID PROPELLANT CONTAINING FEOOH AS BURNING RATE MODIFIER

Daizo Fukuma, Sakado, and Hisao Okamoto, Sayama, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Sep. 9, 1981, Ser. No. 300,649

Claims priority, application Japan, Oct. 20, 1980, 55-146612

Int. Cl.³ C06B *45/10*

U.S. Cl. 149—19.1 **13 Claims**

1. A composite solid propellant comprising ammonium perchlorate as oxidizer, an organic fuel binder and FeOOH as a burning rate modifier.

4,424,086

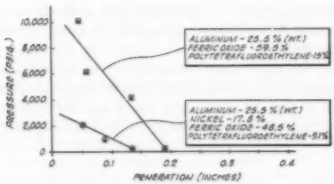
PYROTECHNIC COMPOSITIONS FOR SEVERING CONDUITS

Glenn B. Christopher, Fort Worth, Tex., assignor to Jet Research Center, Inc., Arlington, Tex.

Division of Ser. No. 193,856, Oct. 3, 1980, Pat. No. 4,352,397. This application Jul. 6, 1982, Ser. No. 395,215

Int. Cl.³ C06B *45/10*

U.S. Cl. 149—19.3 **11 Claims**



1. A gas-forming pyrotechnic fuel composition load for use in apparatus for severing conduits in high pressure environments comprising a plurality of stacked fuel pellets of a mixture of (a) a metal selected from the group consisting of aluminum, magnesium, niobium, titanium and mixtures thereof, (b) a metal oxide selected from the group consisting of ferric oxide, ferrous oxide, ferrosoferric oxide, cupric oxide, chromium trioxide and mixtures thereof, and (c) a gas-forming component which vaporizes to form a gas when heated to the temperature at which said metal and said metal oxide react when ignited wherein alternate fuel pellets of said load have alternate amounts of said gas-forming component.

4,424,087

METHOD FOR DESENSITIZING PARTICLE FORMED SOLID EXPLOSIVE SUBSTANCES

Boris Holm, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden

Filed Jun. 28, 1982, Ser. No. 393,159

Claims priority, application Sweden, Jul. 1, 1981, 8104103

Int. Cl.³ C06B *45/02*

U.S. Cl. 149—21 **20 Claims**

1. A method for temporarily rendering an explosive substance non-explosive, which comprises adding to a solid particle formed explosive substance more than 50% by weight of a particle formed, chloride ion-containing salt having substantially the same mean particle size as said explosive substance and being easily washed out of the composition with water.

4,424,088

PROCESS FOR CAUSING AT LEAST TWO BODIES TO ADHERE TO EACH OTHER, IN PARTICULAR IN ORDER TO MANUFACTURE, REPAIR OR RETREAD A TIRE

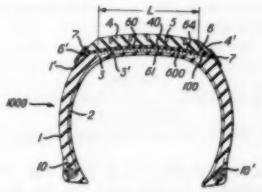
Pierre Durif, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

Filed Dec. 7, 1981, Ser. No. 327,937

Claims priority, application France, Dec. 16, 1980, 80 26741

Int. Cl.³ B60C *21/00*; B29H *5/16*

U.S. Cl. 156—87 **21 Claims**



1. A process for causing at least two bodies, at least one of which is deformable, to adhere to each other, characterized by the following steps:

(a) arranging a face of one of the bodies against a face of the other body in such a manner that there are imperfect contacts between the faces;

(b) applying a joint-forming silicone elastomer in liquid or paste form astride the two bodies over at least part of the outside of the resultant interface to form a lateral joint, each of the bodies consisting at least in part of a rubber which is incompatible with said silicone elastomer;

(c) at least partially vulcanizing the silicone elastomer, the lateral joint becoming an air-permeable solid as the result of said at least partial vulcanization;

(d) arranging the assembly thus obtained within an enclosure which is heated and pressurized by a fluid, the assembly being in contact with the fluid, so that, due to the imperfect contacts between the faces, air which may still be present between the faces of the bodies can escape out of the assembly through the lateral joint, towards the fluid; and

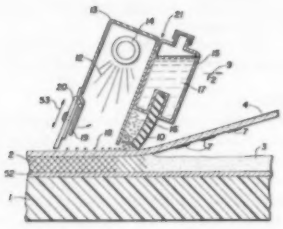
(e) vulcanizing in the enclosure at least one rubber of at least one of the bodies for bonding the bodies.

4,424,089

PHOTOPRINTING PROCESS AND APPARATUS FOR EXPOSING PASTE-CONSISTENCY PHOTOPOLYMERS

Donald F. Sullivan, 115 Cambridge Road, King of Prussia, Pa. 19406

Division of Ser. No. 147,726, May 8, 1980. This application Oct. 21, 1981, Ser. No. 313,609
Int. Cl.³ B32B 31/06, 31/12; G03G 5/05
U.S. Cl. 156—155 11 Claims



1. A process for contacting two air-impermeable sheets, one having a photo image thereon, in a sandwich with a photopolymer layer therebetween comprising the steps of,

coating one said sheet with said photopolymer,

placing one said sheet on a smooth surface,

disposing the second sheet adjacent to and spaced slightly from the first sheet with the coating therebetween,

scanning a resilient member along the second sheet to force the sheets into contact to remove air and smooth the coating into a coating of uniform thickness,

scanning a light source to follow said resilient member and thereby expose and harden the photopolymer in a pattern produced by said photo image, and

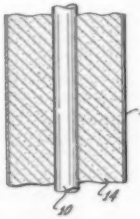
disposing a liquid coolant on the upper surface of the second sheet during scanning in a position between the blade and the light source.

4,424,090

INSULATING MATERIAL AND METHOD OF MAKING MATERIAL

James C. Kyle, 24372 Via San Clemente, Mission Viejo, Calif. 92692

Division of Ser. No. 214,256, Dec. 8, 1980, Pat. No. 4,371,588. This application Sep. 29, 1982, Ser. No. 428,109
Int. Cl.³ C03C 27/02, 3/52
U.S. Cl. 156—89 7 Claims



1. A method of forming an electrical material, including the following steps:

mixing the following oxides

Oxide	Range of Percentages by Weight
Lead oxide (red lead)	57–68

-continued

Oxide	Range of Percentages by Weight
Silicon dioxide	23–32
Soda ash (sodium carbonate)	0.4–0.6
Titanium dioxide	3.2–3.9
Zirconium oxide	3.0–3.7
Boric acid	2.2–2.6

heating the mixture to a suitable temperature to approximately 1700° F. for a particular period of time,

quenching the heated mixture in water, and

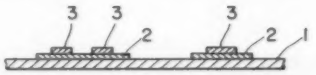
forming the quenched mixture into beads.

4,424,091

TRANSFER SHEET WITH RESIST PORTIONS

Shogo Mizuno, Toride; Takao Suzuki, Kawagoe; Sadanobu Kawasaki, and Hideichiro Takeda, both of Tokyo, all of Japan, assignors to Dai Nippon Insatsu Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 117,798, Feb. 1, 1980, Pat. No. 4,271,224, which is a continuation of Ser. No. 864,486, Dec. 27, 1977, abandoned. This application Jan. 28, 1981, Ser. No. 229,108
Claims priority, application Japan, Dec. 29, 1976, 51-158772
Int. Cl.³ B44C 3/02; B32B 5/16
U.S. Cl. 156—234 20 Claims



1. A dry transfer printing process which comprises:

preparing a transfer sheet of laminated construction comprising a substrate sheet, a coloring layer of a desired pattern disposed on one side of the substrate sheet and containing a heat transferable dye as a coloring agent, said dye being selected from the group consisting of disparse dyes, basic dyes, acidic dyes, and oil soluble dyes, and a resist layer of a desired pattern disposed on said one side of the substrate sheet, either above or below the coloring layer, and containing a metal compound for resist printing by chemical action and a binder, wherein the metal compound for resist printing is a compound consisting of one metal selected from chromium, iron, copper, nickel, and cobalt combined with one radical selected from the radicals of hydrochloric acid, nitric acid, acetic acid, formic acid, and oxalic acid, the metal compound for resist printing being capable of causing the coloring agent to lose its heat transferability;

superposing the transfer sheet on an article to be transfer-printed in a manner such that the side of the transfer sheet provided with the coloring layer and the resist layer contacts the article thereby to form a superposed structure; and

heating the superposed structure so as to selectively heat transfer the coloring agent having heat transferability in parts of the coloring layer which are not laminated with the resist layer to the article to be transfer-printed.

4,424,092

FEED AND DISCHARGE APPARATUS FOR A LAMINATE PRESS

Dieter Salenz, Schwaigern, Fed. Rep. of Germany, assignor to Maschinenfabrik J. Dieffenbacher GmbH & Co., Eppingen, Fed. Rep. of Germany

Filed Sep. 20, 1982, Ser. No. 420,334
Int. Cl.³ B32B 31/00; B44C 7/00
U.S. Cl. 156—391 8 Claims

1. Apparatus for feeding and discharging a laminate pack

into a press having upper and lower press cauls for producing a finished board comprising

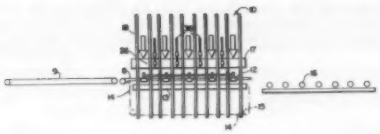
(a) at least two lifters for lifting the finished board from the lower press caul after a pressing operation,

(b) at least two holders for holding said finished board after lifting by said lifters,

(c) at least two conveyor belts for conveying said laminate pack into said press between said upper and lower press cauls,

(d) at least two feeder and discharge arms, one arm positioned for movement into and out of said press from each longitudinal side thereof, and in a direction transverse to said longitudinal side, and each arm supporting at least one lifter, holder and conveyor belt such that said lifter, holder and conveyor belt move together, as a unit, into and out of the press from each longitudinal side thereof,

(e) each of said arms positioned within the area between said upper and lower press cauls of said press adjacent the longitudinal edge of said press for positioning said lifters



and holders for contact with said finished board adjacent opposite longitudinal edges of said finished board and for conveying said laminate pack into said press by contact of said conveyor belts adjacent opposite longitudinal edges of said laminate pack,

(f) said arms positioned outside of the area between said upper and lower press cauls for releasing said laminate pack between said upper and lower press cauls,

(g) means for moving said arms into and out of the area between said upper and lower press cauls of said press, and

(h) means for discharging said finished board from said press while said finished board is held by said holders, wherein said holders are positioned above said finished board and comprise a suction box having a sealing lip and spacer rollers for contacting said finished board and enabling longitudinal movement of said finished board while supported by said holders, said longitudinal movement produced by contact of said discharging means with said finished board.

4,424,093

APPARATUS FOR PRODUCTION OF ALBUM LEAVES

Bernhard A. Schubert, Neu-Bornsen, Fed. Rep. of Germany, assignor to Leuchtturm Albenverlag Paul Koch KG, Geesthacht, Fed. Rep. of Germany

Division of Ser. No. 295,823, Aug. 24, 1981. This application Sep. 27, 1982, Ser. No. 423,792

Claims priority, application Fed. Rep. of Germany, Aug. 25, 1980, 3032016

Int. Cl.³ B32B *31/12, 31/18, 31/20*

U.S. Cl. 156—497 **8 Claims**

1. Apparatus for the automatic production of album leaves having slip-in pockets of double-layered thin plastic film glued thereon including in operative combination:

(a) means for supplying a pair of webrolls of thin plastic film;

(b) means for advancing two webs of said thin plastic film into contact in a longitudinal web-bonding station, said bonding station including:

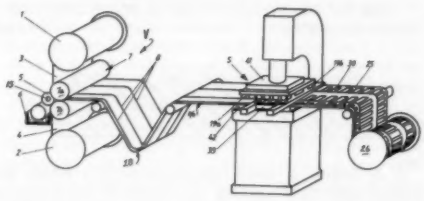
(i) means for application of adhesive, or of a fluid adhesively softening the sheet web, in a plurality of linear stripes spaced transversely apart onto the side of one sheet web of plastic film which faces the second sheet web of plastic film; and

(ii) means comprising contact pressure devices for pressing together the stripes of adhesive or fluidmoistened sheet webs of plastic film to bond the film along longitudinal zones to form a double-sheet web of plastic film;

(c) means for applying adhesive to preselected areas on each album leaf to which said pocket blanks are to be glued disposed in a gluing station;

(d) means comprising an adjustable stamping sub-assembly disposed in a stamping station for forming pocket blanks of slip-in pockets spaced longitudinally and transversely apart, each having at least one linearly joined edge from the double-sheet web of plastic film, said stamping station including:

(i) means for creating a partial vacuum by suction disposed in said stamping station for the intermediate retention of stamped-out, slip-in pockets in their corresponding longitudinally and transversely spaced apart



position relative to one another as produced in the stamping, which positions are aligned with and correspond to the redetermined arrangement in which said pockets are to be glued to said album; and

(ii) means for the termination of the partial vacuum when said slip-in pockets are glued onto said album

(e) means for the intermittent, stepwise, synchronous drawing-off of the waste web of said double-sheet web of plastic film, which waste containing longitudinally and transversely spaced stamping holes remains in the stamping station after stamping-out of said pockets and during gluing of the pockets onto the album leaf; and

(f) means comprising a lifting device disposed in said stamping station for the aligned pressing of said album leaf provided with said preselected zones of adhesive into contact with said corresponding slip-in pockets retained by said partial vacuum.

4,424,094

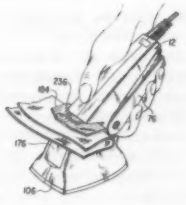
FABRIC SHEARING AND HEATING TOOL

Michael Laude, Danbury; Michael Marra, Huntington, both of Conn.; Corbett W. Stone, South Salem, N.Y., and Artin G. Vartoukian, Roselle Park, N.J., assignors to The Singer Company, Stamford, Conn.

Filed Apr. 28, 1982, Ser. No. 372,496

Int. Cl.³ B32B *31/18*

U.S. Cl. 156—513 **11 Claims**



1. In a fabric repairing tool, a body member, a cutter slidable in said member, a foldable clamp with a through opening

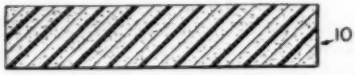
which extends to opposite sides of a fold line, and wherein a fabric portion can be located and then folded with the clamp, and a slot in the body member for receiving the then folded clamp in a position wherein the said fabric portion is in the path of movement of the cutter.

4,424,095

RADIATION STRESS RELIEVING OF POLYMER ARTICLES

David C. Frisch, Baldwin, and Wilhelm Weber, Hicksville, both of N.Y., assignors to Kollmorgen Technologies Corporation, Dallas, Tex.

Continuation-in-part of Ser. No. 223,944, Jan. 12, 1981, Pat. No. 4,339,303. This application May 21, 1982, Ser. No. 380,999
The portion of the term of this patent subsequent to Jul. 13, 1999, has been disclaimed.
Int. Cl.³ B44C 1/22; C03C 15/00, 25/06; C23F 1/02
U.S. Cl. 156—629 34 Claims



1. A method of stress relieving a polymer article which method comprises exposing said article to electromagnetic radiation selected from the group consisting of microwave, infrared and ultraviolet at one or more ranges of frequencies which are capable of being absorbed by said article and which are effective for stress relieving essentially without causing heat induced softening or flowing of said polymer, for a time period sufficient to absorb enough energy to stress relieve and/or stabilize said polymer against stress cracking therein.

4,424,096

R-F ELECTRODE TYPE WORKHOLDER AND METHODS OF SUPPORTING WORKPIECES DURING R-F POWERED REACTIVE TREATMENT

Henry Y. Kumagai, Allentown, Pa., assignor to Western Electric Co., Inc., New York, N.Y.

Filed Dec. 23, 1982, Ser. No. 452,680
Int. Cl.³ B44C 1/22; C03C 15/00, 25/06; C23C 15/00
U.S. Cl. 156—643 14 Claims

13. A method of supporting workpieces during a plasma reactive treatment, which comprises:

supporting such workpieces against mutually facing, spaced surfaces of electrodes, each of such electrodes comprising a conductive base structure, an intermediate layer of relatively high resistance with respect to such conductive base structure, and an outer conductive layer of relatively low resistance with respect to such intermediate layer;

applying an R-F power signal between the base structures of said electrodes; and

radiating such R-F power signal from such outer, conductive layer between such spaced surfaces to generate a plasma between such electrodes to treat said supported articles.

4,424,097

METAL STRIPPING PROCESS AND COMPOSITION

Erich Lipka, Eching, and Eberhard Lendle, Oberasbach, both of Fed. Rep. of Germany, assignors to Elget Ing.-Biiro für Grafische und Elektronische Technik, Oberasbach, Fed. Rep. of Germany

Filed Aug. 9, 1982, Ser. No. 406,311
Claims priority, application Fed. Rep. of Germany, Aug. 17, 1981, 3132427; Mar. 6, 1982, 3208124
Int. Cl.³ C23F 1/02; B44C 1/22
U.S. Cl. 156—656 8 Claims

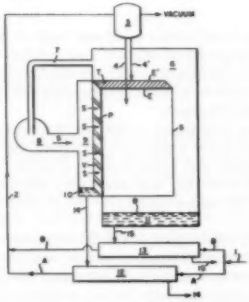
1. A process for the removal of tin and tin alloys, which comprises applying an aqueous solution containing 5 to 20% v/v hydrochloric acid and 2.5 to 6.0 g/l copper.

4,424,098

FALLING FILM EVAPORATOR

Martval J. Hartig, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 206,288, Nov. 12, 1980, Pat. No. 4,341,601, which is a continuation-in-part of Ser. No. 123,023, Feb. 20, 1980, abandoned. This application Mar. 25, 1982, Ser. No. 361,853
Int. Cl.³ B01D 1/22
U.S. Cl. 159—1 W 6 Claims



1. In a falling film evaporator comprising

(A) a plurality of substantially vertical and equidistant heat exchange elements made of a film of a synthetic polymeric material, each heat exchange element having two evaporating surfaces and two heating surfaces, the heating surfaces being in communication with a heating steam inlet;

(B) a feeding means for delivering aqueous solution to be evaporated to the evaporating surfaces of the heat exchange elements;

(C) a liquid concentrate collection means for receiving and removing liquid flowing down from the bottom of the evaporating surfaces of the heat exchange elements;

(D) a steam compressing means communicating with water vapor formed on the evaporating surfaces of the heat exchange elements and with the heating steam inlet; and

(E) a means for collecting fresh water formed by the condensation of heating steam in contact with the heating surfaces of the heat exchange elements;

the improvement of

providing liquid spreading means being made of fibers or particles which are wettable or made wettable by water, said liquid spreading means having a horizontal spreading means component and a free area of at least 20%, and the spacing and dimensioning of the individual fibers or particles being such that, when said evaporator is in use, the descending aqueous solution forms droplets which completely fill the voids, such that each liquid spreading means coacts with its closest outer heat exchange suface and with the flowing aqueous solution to form a stable, thin film over said outer

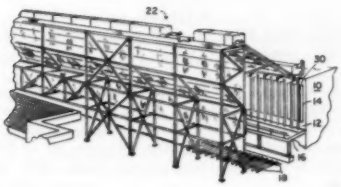
heat exchange surface, thereby permitting even evaporation of water from each said surface without formation of either dry spots or rivulets even at a feed rate of the aqueous solution to be evaporated of less than 300 kg per linear horizontal meter of each outer heat exchange surface per hour, said feed rate always being higher than the evaporation rate of said solution, and said feeding means being sized sufficient to provide said feed rate.

4,424,099

PROCESS FOR CONTROL OF COKE OVEN EMISSIONS

Michael J. Kozy, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Division of Ser. No. 340,234, Jan. 18, 1982, Pat. No. 4,360,404. This application Aug. 27, 1982, Ser. No. 412,257
Int. Cl.[3] C10B *33/00, 41/02, 57/00*
U.S. Cl. 201—41 2 Claims



1. A method of capturing and controllably removing particulate and gaseous emissions that evolve from hot coke as it is pushed from a coke oven in the operation of a coke battery, which comprises,

initially confining said emissions to a first longitudinally extending containment zone having an inclined roof enclosure means projecting angularly upwardly and outwardly from a coke-side face of said battery to be terminally superimposed in spaced relation over an essentially vertical partition wall to form a peak in said first containment zone, while directing said emissions under the influence of its gaseous thermal drive upwardly and laterally outwardly away from the coke-side face of said battery,

transferring said emissions, at the peak of said first containment zone, laterally, through a gas expansion throat, into a second longitudinally extending containment zone that is adjacent and parallel to said first containment zone and which has an outer enclosure means including a longitudinally extending side wall portion extending downwardly and a longitudinally extended inclined wall projecting angularly downwardly and inwardly from said side wall to a position adjacent and spaced below the essentially vertical partition wall,

contemporaneously removing a portion of said emissions from the upper reaches of said second containment zone through an exhaust conduit superimposed over said second containment zone,

permitting the remainder of said gaseous emissions in said second containment zone to expand longitudinally and transversely within said second zone, and

removing said remainder of said gaseous emissions from said second containment zone through said exhaust conduit.

4,424,100

METHOD FOR PRODUCING ARTICLES BY DEFORMATION SUBSTRATES HAVING A RADIATION CURED SUBSTRATE

William H. McCarty, Whitehouse Station; John P. Guarino, Lawrenceville, and Frank A. Nagy, Edison, all of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Continuation of Ser. No. 36,191, May 4, 1979, abandoned. This application Oct. 24, 1980, Ser. No. 200,117
Int. Cl.[3] C08F *8/00*; B05D *3/06*
U.S. Cl. 204—159.15 14 Claims

1. A method for preparing a radiation cured coating on a metal substrate which is subsequently fabricated with deformation, which comprises:

(a) applying to a deformable metal substrate a coating composition comprising a blend of monounsaturated and polyunsaturated molecules, and an internal lubricant such that the molar ratio of reactive unsaturated bonds present in said polyunsaturated molecules to reactive unsaturated bonds present in said monounsaturated molecules is below about 0.5; and said internal lubricant is present in an amount sufficient to allow release of the coated metal substrate upon fabrication with deformation;

(b) exposing said blend of polymerization-inducing radiation, in the presence of a substantially oxygen-free atmosphere, for a sufficient time to effect a cure of at least 85% by weight of the monomeric unsaturated molecules in the coating having a glass transition temperature in its cured state of between about −10° C. and +100° C.; and

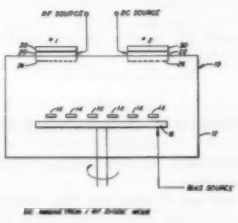
(c) subjecting the coated metal substrate to fabrication by deformation.

4,424,101

METHOD OF DEPOSITING DOPED REFRACTORY METAL SILICIDES USING DC MAGNETRON/RF DIODE MODE CO-SPUTTERING TECHNIQUES

Ronald S. Nowicki, Sunnyvale, Calif., assignor to The Perkin-Elmer Corp., Norwalk, Conn.

Continuation of Ser. No. 204,411, Nov. 6, 1980, abandoned. This application Aug. 11, 1982, Ser. No. 407,227
Int. Cl.[3] C23C *15/00*
U.S. Cl. 204—192 C 15 Claims



1. A method of sputtering material from a pair of target electrodes onto substrate means, comprising the steps of:

disposing a pair of target electrodes each having a sputtering surface within a low pressure working gas environment, one of which has a sputtering surface comprising a material doped with a selected dopant;

applying a DC voltage in the presence of a magnetic field to at least one of said target electrodes; and

supporting within said gaseous environment said substrate means intended to be sputter coated to thereby coat said substrate means with material from said target electrodes.

4,424,102
REACTOR FOR REACTIVE ION ETCHING AND ETCHING METHOD

Christine Brandeis, Sindelfingen; Jurgen Kempf, Schonaich; Georg Kraus, Wildeberg, and Ulrich Künzel, Kusterdingen, all of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 28, 1983, Ser. No. 479,405

Claims priority, application European Pat. Off., Mar. 31, 1982, 82102719.0

Int. Cl.³ C23C *15/00*

U.S. Cl. 204—192 E **10 Claims**

1. A plasma apparatus suitable for a plurality of spaced reactive ion etching substrates comprising:

a vacuum chamber,

means for creating a plasma of ions reactive with said substrates and applying a potential between said plasma and said substrates, and a localized means to generate magnetic fields at and across each of said substrates in spaced relationship to other substrates.

4,424,103
THIN FILM DEPOSITION

Barrett E. Cole, Bloomington, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Apr. 4, 1983, Ser. No. 481,553

Int. Cl.³ C23C *15/00*

U.S. Cl. 204—192 R **8 Claims**

1. A method of thin film deposition, comprising:

bombarding a target obliquely in a vacuum chamber with a linear ion gun, the linear ion gun generating an ion beam which impacts the target over an area having a width substantially greater than a height, target material in the impacted area being sputtered; and

depositing the sputtered target material onto a surface by translating the surface at a controlled rate through the sputtered material.

4,424,104
SINGLE AXIS COMBINED ION AND VAPOR SOURCE

James M. E. Harper, Yorktown Heights, and Alan W. Kleinsasser, Putnam Valley, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 12, 1983, Ser. No. 493,871

Int. Cl.³ C23C *15/00*

U.S. Cl. 204—192 N **9 Claims**

1. Apparatus for generating both vapor flux and ion flux—characterized by—

(a) flux generating means, for simultaneously generating an ion flux and a vapor flux from a common source; and

(b) control means, for varying the amount of said vapor flux for a given ion flux.

4,424,105
GAS GENERATOR WITH REGULATED CURRENT SOURCE

Robert M. Hanson, Phoenix, Ariz., assignor to Henes Products Corp., Phoenix, Ariz.

Filed Aug. 5, 1982, Ser. No. 405,586

Int. Cl.³ C25B *1/06, 15/02, 15/08, 9/04*

U.S. Cl. 204—228 **11 Claims**

1. A multi-cell gas generator assembly comprising in combination:

a housing defining a cavity,

a plurality of chambers within the cavity of said housing, each chamber defining a gas generating cell,

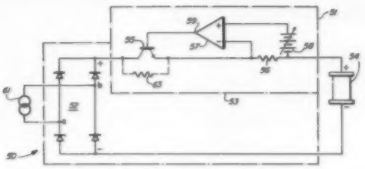
adjacent chambers being separated by electrode plates,

each chamber having inlet and outlet ports,

a gas and electrolyte separating tank means for receiving an electrolyte and comprising inlet and first and second outlet port means,

said first outlet port means of said tank means being connected to said inlet ports of said chamber and said outlet ports of said chambers being connected to said first inlet port means of said tank means,

said second outlet port means of said tank means being positioned above the surface of electrolyte placed in said tank means for discharging gas generated from said tank means, and



means for connecting a variable voltage power source to electrical terminals across said chambers to achieve the desired rate of gas generation in said chambers,

said means comprising a current regulator incorporating a series transistor operated in a variable-resistance, current-limiting mode.

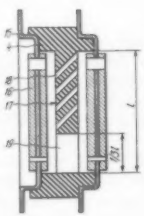
4,424,106
ELECTROLYTIC FILTER PRESS CELL FOR PRODUCING A MIXTURE OF HYDROGEN AND OXYGEN

Alexei A. Rossoshinsky; Valentin I. Balakin; Alexandr K. Babak; Vladimir K. Lebedev, all of Kiev; Lev G. Mironov, Moscow; Gennady I. Chelnokov, Moskovskaya oblast, Mytischi, and Gennady V. Vinogradov, Moscow, all of U.S.S.R., assignors to Institut Elektrosvarki Imeni E.O. Patona, U.S.S.R.

Filed Nov. 27, 1981, Ser. No. 325,482

Int. Cl.³ C25B *1/08, 1/10, 11/02*

U.S. Cl. 204—256 **9 Claims**



6. In an electrolytic filter press cell for producing a mixture of hydrogen and oxygen having a tank adapted to contain electrolyte, made of electrical insulating material and including end walls and side walls, a plurality of spaced bipolar electrodes forming compartments therebetween and between the walls of said tank, and fastener means for holding said electrodes in position,

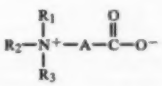
the improvement which comprises the provision of a depression on the same side of each of said electrodes, with each electrode having a trough-shaped configuration, in which said side walls are formed as a plurality of frames with a frame situated around the edges of the depression in each of said bipolar electrodes, and in which each frame comprises a diaphragm having at least one vent extending therethrough with a center line of said at least one vent forming an angle of 30° to 60° with the plane of the diaphragm.

4,424,107
ORGANIC SURFACTANT OXIDATION PROMOTERS FOR HYDROCARBONS

Donald D. Carlos, Louisville, Ky., assignor to Ashland Oil, Inc., Ashland, Ky.

Filed Apr. 20, 1981, Ser. No. 255,943
Int. Cl.³ C07C *27/10*; C10G *3/00, 27/00, 27/06*
U.S. Cl. 208—3 **33 Claims**

1. A process for oxidizing liquid hydrocarbons comprising saturated hydrocarbons having an average number of carbon atoms per molecule of 20 to 100, said process comprising blowing an oxidizing gas through a liquid mass of said hydrocarbons in the presence of an oxidation promoting amount of an organic surfactant selected from at least one of an organic sulfonate salt selected from the group consisting of alkali metal, alkaline earth metal and ammonium sulfonates, an organic phosphate salt, an organic sulfate salt, a polyalkyleneoxide, or a nitrogen betaine salt of the formula



wherein at least one of R_1, R_2 and R_3 is a hydrocarbon radical containing about 10 to 30 carbon atoms, the remainder of R_1, R_2 and R_3 are each methyl and A is a divalent linking group.

4,424,108
PROCESS FOR HEATING COAL-OIL SLURRIES

Walter A. Braunlin, Spring, Tex.; Alan Gorski, Lovington, N. Mex.; Leo J. Jaehnig, New Orleans, La.; Clifford J. Moskal, Oklahoma City, Okla.; Joseph D. Naylor, Houston, Tex.; Krishnia Parimi, Allison Park, Pa., and John V. Ward, Arvada, Colo., assignors to The Pittsburg & Midway Coal Mining Co., Englewood, Colo.

Filed Jan. 8, 1982, Ser. No. 337,301
Int. Cl.³ C10G *1/00*
U.S. Cl. 208—8 LE **41 Claims**

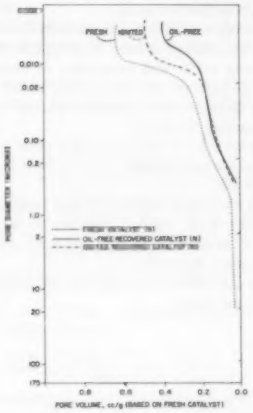
1. A process for heating a coal-oil slurry in a heating zone comprising controllably heating in a flowing stream a coal-oil slurry and a gas containing at least about 70 mol per cent hydrogen while controlling the volume ratio of slurry to gas so as to maintain homogeneous flow in the portion of the heating zone where the bulk temperature of the coal-oil slurry is raised from about 500° F. (260° C.) to about 600° F. (332° C.).

4,424,109
CATALYST FOR COAL LIQUEFACTION PROCESS

Derk T. A. Huibers, Pennington, and Chia-Chen C. Kang, Princeton, both of N.J., assignors to Hydrocarbon Research, Inc., Lawrenceville, N.J.

Filed Apr. 7, 1981, Ser. No. 251,828
Int. Cl.³ C10G *1/06*
U.S. Cl. 268—10 **37 Claims**

1. In a coal liquefaction process where coal is converted to liquid fuels in an ebullated-catalyst-bed reactor, wherein coal is dissolved in the presence of hydrogen at a sufficiently high temperature and converted to distillate liquid fuels, gas and residual oil, which comprises preasphaltenes and asphaltenes, the improvement comprising catalyst selected from the group consisting of the oxides of nickel and molybdenum, cobalt and molybdenum, cobalt and tungsten, and nickel and tungsten on a carrier of alumina, silica or a combination of alumina and silica, said catalyst having a total pore volume of about 0.500 to about 0.900 cc/g, wherein said total pore volume comprises micropores, intermediate pores and macropores wherein said micropores have diameters between about 50 and about 200 angstroms (Å) and comprise from about 50 to about 80% of said pore volume, said intermediate pores have diameters between about 200 and about 2,000 angstroms (Å) and comprise from about 10 to about 25% of said pore volume, and said macropores have diameters between about 2,000 and about 10,000 angstroms (Å) and comprise from about 10 to about 25% of said pore volume, the surface area of said intermediate pores being sufficiently large to convert said preasphaltenes



that have entered the catalyst pores whereby said micropores are not substantially clogged or obstructed for converting said asphaltenes.

4,424,110
HYDROCONVERSION PROCESS

Roby Bearden, Jr.; William C. Baird, Jr., and Clyde L. Aldridge, all of Baton Rouge, La., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 182,507, Aug. 29, 1980, abandoned. This application Feb. 3, 1982, Ser. No. 345,340
Int. Cl.³ C10G *1/08, 47/02*
U.S. Cl. 208—10 **16 Claims**

1. In a process for the hydroconversion of a carbonaceous feed which comprises:

(a) forming a mixture of said carbonaceous feed and a thermally decomposable metal compound wherein said metal compound comprises at least one metal constituent selected from the group consisting of Group II, III, IVB, VB, VIB, VIIB, VIII and mixtures thereof of the Periodic Table of Elements;

(b) reacting the resulting mixture with a hydrogen-containing gas at hydroconversion conditions, in a hydroconversion zone, said metal compound being converted to a metal-containing catalyst within said mixture at said conditions, and

(c) recovering a normally liquid hydrocarbon product, the improvement which comprises said reaction being conducted in the presence of a hydrogen halide in an amount such as to provide a ratio from about 0.1 to about 20 gram-moles hydrogen halide per gram-atom of said metal constituent.

4,424,111
REGENERATION OF ZNC12

Clyde W. Zielke, McMurray, and William A. Rosenhoover, Pittsburgh, both of Pa., assignors to Conoco Inc., Wilmington, Del.

Filed Jun. 1, 1982, Ser. No. 383,916
Int. Cl.³ C10G *1/06*; C01B *9/00*; B01J *27/32, 35/12*
U.S. Cl. 208—10 **11 Claims**

11. A method of catalyst regeneration and hydrocracking an ash containing coal or tar hydrocarbonaceous feed stock material having about 3 percent or higher sulfur content containing

vanadium or nickel using a zinc oxide containing zinc chloride catalyst and lowering defluidization during fluidized bed regeneration of said catalyst comprising

providing a catalyst comprising zinc chloride and zinc oxide, in a hydrogenation means,

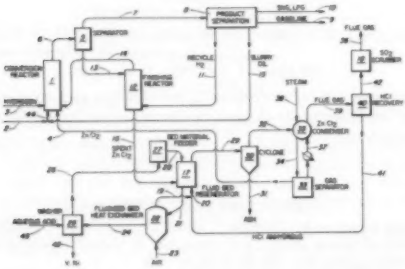
hydrocracking said hydrocarbonaceous feed of coal or tar in said hydrogenation means, said hydrocarbonaceous feed comprising sulfur and vanadium, or nickel, whereby at least a portion of said zinc oxide forms ZnS, and said catalyst forms a spent catalyst mixture comprising ZnS and vanadium or nickel,

conveying at least a portion of said spent catalyst mixture from said hydrogenation means to a fluidized bed regeneration means,

conveying hydrogen chloride to said regeneration means,

heating said spent catalyst mixture in said regeneration means in the presence of said hydrogen chloride whereby $ZnCl_2$ vaor is formed,

conveying said $ZnCl_2$ vapor from said regeneration means to a contactor means,



contacting at least a portion of said $ZnCl_2$ vapor with steam in said contactor means to form a regenerated catalyst comprising a mixture of ZnO and $ZnCl_2$ solid,

conveying said regenerated catalyst mixture of ZnO and $ZnCl_2$ to said hydrogenation means,

withdrawing a portion of fluidizable bed material from said fluidized bed regeneration means to a washing means,

washing said portion of said fluidizable bed material in said washing means with aqueous acid to produce washed fluidizable bed material,

conveying said washed fluidizable bed material to said fluidized bed regeneration means, whereby said washed fluidizable bed material comprises less vanadium or nickel than said fluidizable bed material in said fluidized bed regenerator means and defluidization in said fluidized bed regenerator means from vanadium or nickel is lowered, and said spent catalyst mixture is regenerated to form a regenerated catalyst mixture of zinc chloride and zinc oxide.

4,424,112

METHOD AND APPARATUS FOR SOLVENT EXTRACTION

John S. Rendall, Morgan Hill, Calif., assignor to Solv-ex Corporation, Albuquerque, N. Mex.

Division of Ser. No. 382,115, May 28, 1982, which is a division of Ser. No. 159,680, Jun. 16, 1980, abandoned. This application Sep. 30, 1982, Ser. No. 429,251

Int. Cl.³ C10G *1/04*

U.S. Cl. 208—11 LE **19 Claims**

1. A method for extracting bitumen oils from tar-sands comprising the steps of:

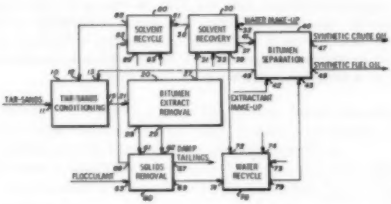
(a) crushing the tar-sands to yield particles of a predetermined size;

(b) soaking the tar-sands in an organic solvent to soften the oil layer surrounding the tar-sand particles;

(c) mixing the solvent soaked tar-sands with hot water while excluding substantially all air therefrom such that a slurry, containing sand, bitumen oils, solvent, and hot water, is formed;

(d) dislodging the bitumen oils, solvent and water from the solid and dry particles in the slurry through jet mixing and pumping means while continuing to exclude air;

(e) separting said slurry into at least a first and second stream, with said first stream being a bitumen extract containing



bitumen oils, solvent and water with traces of solids, and said second stream being a wet solids extract containing sand, clay and water with traces of bituminous oils and solvent;

(f) separating said first bitumen extract into a component of bitumen oils and a component of solvent and water mixture;

(g) separating said wet solids extract into a component of damp tailings and a component of water and solvent; and

(h) separating said component of solvent and water mixture into a solvent component and a water component;

(i) separating said bitumen oils into synthetic fuel oil and synthetic crude oil.

4,424,113

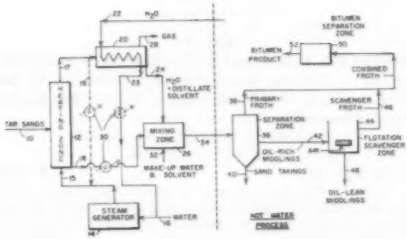
PROCESSING OF TAR SANDS

Thomas O. Mitchell, Trenton, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Jul. 7, 1983, Ser. No. 511,615

Int. Cl.³ C10G *1/04*

U.S. Cl. 208—11 LE **19 Claims**



1. A process for recovering bitumen from bituminous tar sands comprising:

(a) heating the tar sands with steam in a heating zone under conditions sufficient to partially visbreak the bituminous material thereby producing a vaporous hydrocarbon distillate mixed with steam and leaving a substantial amount of residual bituminous material of reduced viscosity and specific gravity on said heat treated tar sands;

(b) recovering substantially all of the vaporous mixture of hydrocarbon distillate and steam and cooling and condensing the mixture;

(c) recovering the tar sand containing beneficiated residual bituminous material and mixing it with the condensed

mixture of hydrocarbon distillate and water to form a slurry; and

(d) recovering the bituminous material from the slurry by a hot-water separation process.

4,424,114

SEPARATING BASIC ASPHALTENES USING TRANSITION METAL OXIDE ACID CATALYSTS

Lawrence L. Murrell, South Plainfield; Dane C. Grenoble, Plainfield, and Robert B. Long, Atlantic Highlands, all of N.J., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Sep. 24, 1981, Ser. No. 305,268
Int. Cl.³ C10G *11/04, 25/00, 25/12*
U.S. Cl. 208—86 **23 Claims**

1. A process for selectively removing basic asphaltenes from a basic asphaltene-containing hydrocarbon feed which comprises contacting said feed, in an adsorption zone and at a temperature below about 575° F., with a fresh or regenerated solid acid catalyst comprising at least one catalytic metal oxide selected from the group consisting essentially of the oxides of (a) tungsten, niobium and mixtures thereof and (b) mixtures of (a) with tantalum, hafnium, chromium, titanium, zirconium and mixtures thereof supported on an inorganic refractory metal oxide support, for a time sufficient to adsorb at least a portion of said basic asphaltenes from said feed to produce a feed of reduced basic asphaltene content wherein said catalyst has been calcined to remove adsorbed water from the surface thereof prior to being contacted with said feed.

4,424,115

SELECTIVE REMOVAL AND RECOVERY OF AMMONIA AND HYDROGEN SULFIDE

Thomas R. Farrell, Hercules, Calif., assignor to Shionogi & Co., Ltd., Osaka, Japan

Filed Apr. 9, 1982, Ser. No. 366,894
Int. Cl.³ C10G *53/00, 69/02*; C01C *1/12*
U.S. Cl. 208—89 **2 Claims**

1. A method of treating a hydrocarbon material containing sulfur and nitrogen comprising:

(a) subjecting said hydrocarbon material to mild hydrotreating, wherein a portion of the nitrogen present in the hydrocarbon material is converted to ammonia, wherein a portion of the sulfur present in the hydrocarbon material is converted to hydrogen sulfide and wherein the metal content of the hydrocarbon material is reduced;

(b) washing said hydrotreated hydrocarbon material to form a demetallized oil and a first effluent stream comprising water, ammonia, and hydrogen sulfide;

(c) separating said demetallized oil from said first effluent stream;

(d) hydrotreating said demetallized oil in the presence of hydrogen, wherein most of the nitrogen remaining in the demetallized oil is converted to ammonia, and wherein most of the sulfur remaining in the demetallized oil is converted to hydrogen sulfide;

(e) washing said hydrotreated demetallized oil with only enough water to absorb the bulk of the hydrogen sulfide but only a fraction of the ammonia; thereby forming a washed hydrotreated demetallized oil containing ammonia and hydrogen sulfide in a vapor phase, and a second effluent stream comprising water, ammonia and hydrogen sulfide;

(f) separating said washed hydrotreated demetallized oil from the second effluent stream, and separating a vapor phase from said washed hydrotreated demetallized oil in a high pressure separator;

(g) scrubbing said vapor phase with water to produce an aqueous solution of ammonia having an ammonia to hydrogen sulfide ratio of at least 6:1;

(h) stripping said first effluent stream in a hydrogen sulfide stripper;

(i) withdrawing overhead vapor from said hydrogen sulfide stripper, said vapor comprising hydrogen sulfide essentially free of ammonia;

(j) withdrawing bottoms liquid from said hydrogen sulfide stripper, said liquid comprising water, hydrogen sulfide, and ammonia;

(k) adding said bottoms liquid to said second effluent stream;

(l) stripping said second effluent stream in an ammonia stripper;

(m) withdrawing overhead vapor from said ammonia stripper, said vapor comprising water, hydrogen sulfide, and ammonia;

(n) withdrawing bottoms liquid from said ammonia stripper, said liquid comprising stripped water;

(o) partially condensing said overhead vapor from said ammonia stripper to form an uncondensed portion comprising ammonia vapors substantially free of hydrogen sulfide and water, and a condensed portion comprising water, hydrogen sulfide, and ammonia;

(p) returning a part of said condensed portion to said ammonia stripper; and

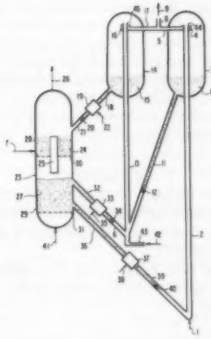
(q) recycling another part of said condensed portion to said hydrogen sulfide stripper.

4,424,116

CONVERTING AND STRIPPING HEAVY HYDROCARBONS IN TWO STAGES OF RISER CONVERSION WITH REGENERATED CATALYST

William P. Hettinger, Jr., Russell, Ky., assignor to Ashland Oil, Inc., Ashland, Ky.

Filed Mar. 25, 1982, Ser. No. 361,661
Int. Cl.³ C10G *11/18*
U.S. Cl. 208—120 **32 Claims**



1. A method for catalytically converting hydrocarbon feeds boiling about 650° F. and higher comprising metal contaminants and Conradson Carbon contributing components of which at least 10% boil above about 1000° F. which comprises, contacting said hydrocarbon feed with hot freshly regenerated catalyst particles in a first riser reaction conversion zone under conditions to effect a partial conversion of said feed to vaporous products whereby heavy liquid oil component material not vaporized and carbonacious material are laid down on said catalyst particles, separating vaporous products from said catalyst particles,

raising the temperature of said catalyst particles separated from vaporous products of said first riser zone in a separate second riser contact zone by admixture with additional hot freshly regenerated catalyst and passing the mixture with lift gaseous material through said second riser reaction contact zone under conditions to effect vaporization and cracking of heavy liquid oil component material laid down on said catalyst particles in said first riser conversion zone, separating catalyst particles comprising carbonaceous deposits from vaporous hydrocarbon products, stripping entrained vapor-

ous material from said catalyst particles, regenerating the stripped catalyst by combusting carbonaceous deposits with oxygen containing gas in a regeneration operation comprising at least one dense fluid bed of catalyst under conditions to provide regenerated catalyst at a temperature within the range of 1200° F. to about 1600° F., and

passing regenerated catalyst at an elevated temperature to each of said first and second riser contact zones.

4,424,117

HYDROSTRIPPING PROCESS OF CRUDE OIL

Masaya Kuno, 7-13 Tsuruma 1-chome Machida, Tokyo, Japan

Filed May 7, 1982, Ser. No. 376,217

Claims priority, application Japan, Jun. 1, 1981, 56-082496

Int. Cl.³ C10G *65/04*; B01D *3/34*

U.S. Cl. 208—211 **2 Claims**

1. A hydrostripping process which is the combination of crude oil distillation and hydrotreating of a distillate overhead, wherein crude oil mixed with a large amount of hydrogen is distilled under high temperature and pressure and separated into a distillate overhead to be hydrotreated and into a heavy residue, said distillate to be subsequently hydrotreated in a hydrosulfurization reactor, said process comprising:

a. supplying crude oil mixed with hydrogen rich gas into a crude oil heater and then into a crude oil stripper,

b. supplying additional hydrogen rich gas at the bottom of said crude oil stripper,

c. distilling and separating the resultant mixture of crude oil and hydrogen rich gas into distillate overhead and heavy residue in said stripper under high temperatures and pressures,

d. circulating a reflux through a reflux cooler located at the top of the stripper, said reflux helping to separate the crude oil into distillate overhead and residue at the bottom of said stripper, thereby preventing the contamination of the heavier residue from carrying over to a subsequent hydrodesulfurization reactor and maintaining the temperature of said distillate overhead higher than that of the starting temperature conditions of the subsequent hydrodesulfurization reaction, whereby the relatively heavy residue free distillate overhead is directly supplied to the hydrodesulfurization reactor.

4,424,118

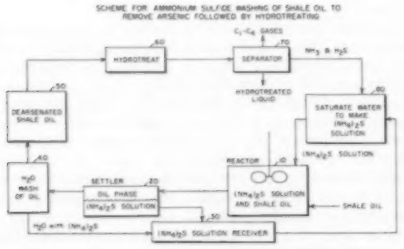
METHOD FOR REMOVING CONTAMINANTS FROM HYDROCARBONACEOUS FLUID

Lillian A. Rankel, Princeton, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Dec. 1, 1981, Ser. No. 326,257

Int. Cl.³ C10G *29/02, 45/02*

U.S. Cl. 208—211 **21 Claims**



1. A process for removing contaminants from a hydrocarbonaceous fluid feed stream comprising the steps of:

(a) treating said feed stream at a tempeature of from about 20° F. to about 400° F. in the presence of an aqueous solution of ammonium sulfide type compounds for a time sufficient to convert at least some of the contaminants in said feed stream to components extractable in said aqueous solution; and

(b) separating the aqueous solution containing said contaminants from the feed stream.

4,424,119

PROCESS FOR REMOVAL OF ALKYL LEAD IMPURITIES FROM LIQUID HYDROCARBONS

Costandi A. Audeh, Princeton, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Division of Ser. No. 118,815, Feb. 5, 1980, which is a continuation-in-part of Ser. No. 754,461, Dec. 27, 1976, abandoned. This application Sep. 30, 1982, Ser. No. 429,377

Int. Cl.³ C10G *29/12*

U.S. Cl. 208—251 R **12 Claims**

10. A process for effecting the removal of alkyl lead contaminant from liquid hydrocarbon media containing said contaminant which comprises contacting said liquid hydrocarbon media at a temperature of from about 25–60° C and a LHSV of from about 5–20 with a solid sorbent, said sorbent comprising fresh, spent or regenerated bead Thermofor cracking catalyst selected from the group consisting of various forms of silica, bauxite, mordenite, natural and synthetic clays, amorphous and crystalline aluminosilicates, alumina and silica-alumina mixtures having a pore diameter of from about 3–300Å and a surface area of from about 5–1000 m^2/g. having adsorbed therein from about 0.001–20 wt. % of anhydrous hydrogen chloride until substantially all of said contaminant is removed therefrom.

4,424,120

PROCESS FOR REMOVAL OF ALKYL LEAD IMPURITIES FROM LIQUID HYDROCARBONS

Costandi A. Audeh, Princeton, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 754,461, Dec. 27, 1976, abandoned. This application Feb. 5, 1980, Ser. No. 118,815

Int. Cl.³ C10G *29/04*

U.S. Cl. 208—253 **24 Claims**

1. A process for effecting the removal of alkyl lead contaminant from liquid hydrocarbon media containing said contaminant which comprises contact of said hydrocarbon media at a temperature below the boiling point thereof with a solid sorbent having an amount of anhydrous HCl gas adsorbed therein sufficient to effect substantial reduction in the concentration of said contaminant and maintaining said contact until substantially all of said contaminant is removed therefrom.

4,424,121

SELECTIVE REMOVAL OF NITROGEN-CONTAINING COMPOUNDS FROM HYDROCARBON MIXTURES

Henry W. Choi, Irvine, and Martin B. Dines, Laguna Beach, both of Calif., assignors to Occidental Research Corporation, Irvine, Calif.

Filed Jul. 30, 1982, Ser. No. 403,925

Int. Cl.³ C10G *21/00, 21/06*

U.S. Cl. 208—254 R **37 Claims**

30. A process for reducing the nitrogen content of shale oil comprising:

contacting shale oil with an extraction agent comprising at least one solid metal salt selected from:

the group consisting of cobalt molybdate, cobalt metaborate, the halides, nitrates, sulfates and tetronfluoroborates of copper, zinc, nickel, cobalt, iron, manganese, chromium, vanadium, niobium, zirconium, molybdenum, thorium and uranium; or

the group consisting of the phosphate and phosphate derivatives of zirconium and the copper II exchanged counterparts thereof; or

the group consisting of the substituted and non-substituted acetates, carboxylates and acetylacetonates of copper, zinc, nickel, cobalt, iron, manganese, chromium, vanadium, niobium, zirconium, molybdenum, thorium and uranium,

for a time sufficient to remove at least a portion of the nitro-

gen-containing compounds from the shale oil to thereby form a nitrogen-lean shale oil raffinate and a high-nitrogen extract;

separating the high-nitrogen extract from the shale oil raffinate;

washing the high-nitrogen extract with a first solvent having a dielectric constant of no more than about 2 for dissolving non-nitrogen-containing compounds entrained in the extract to thereby form a solvent wash comprising the first solvent and non-nitrogen containing compounds dissolved therein, and disstilling the solvent wash sufficiently to form a distillate comprising the first solvent substantially free of non-nitrogen-containing compounds and a bottoms comprising non-nitrogen-containing compounds;

combining the bottoms and the raffinate;

mixing the high-nitrogen solid extract with a second solvent having a dielectric constant of from about 2 to about 8 to thereby form a solvent phase comprising the second solvent and nitrogen-containing compounds and a solid phase comprising the metal salt;

separating the solvent phase from the solid phase; and

distilling the solvent phase sufficiently to form a distillate comprising the second solvent substantially free of nitrogen-containing compounds.

4,424,122

GOLD FLOTATION WITH MERCAPTAN AND IMIDAZOLINE

Robert M. Parlman, and Clarence R. Bresson, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Apr. 19, 1982, Ser. No. 369,674
Int. Cl.³ B03D 1/14
U.S. Cl. 209—166 **10 Claims**

6. A flotation process comprising

(a) mixing mineral material, water and a composition as defined in one of the claims 1 to 5 to establish a pulp,

(b) aerating said pulp to produce a froth and a tail product,

(c) separating said froth from said tail product, and

(d) recovering mineral values from said froth said tail product or both from said froth and from said tail product.

4,424,123

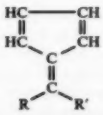
ORE FLOTATION USING FULVENES

Robert M. Parlman; Lyle D. Burns, and Clarence R. Bresson, all of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Aug. 12, 1982, Ser. No. 407,414
Int. Cl.³ B03D 1/14
U.S. Cl. 209—166 **7 Claims**

3. An ore flotation process comprising

(a) mixing mineral material, water and one fulvene compound or a mixture of fulvene compounds represented by the formula



wherein R and R′ can be hydrogen or a hydrocarbyl radical having from 1 to 20 carbon atoms, and wherein R and R′ together with the carbon atom to which they are attached can together form a single cyclohydrocarbylidene group, such as cycloalkylidene, having 3 to 20 carbon atoms,

(b) aerating said pulp to produce a froth and a tail product,

(c) separating said froth and said tail product, and

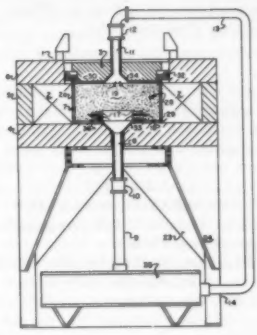
(d) recoverying mineral values from said froth.

4,424,124

METHOD AND MAGNETIC SEPARATOR FOR REMOVING WEAKLY MAGNETIC PARTICLES FROM SLURRIES OF MINUTE MINERAL PARTICLES

Joseph Iannicelli, Brunswick, Ga., assignor to J. M. Huber Corporation, Locust, N.J.

Continuation of Ser. No. 950,468, Oct. 11, 1978, abandoned, which is a continuation of Ser. No. 712,844, Aug. 9, 1976, abandoned, which is a continuation of Ser. No. 574,972, May 6, 1975, abandoned, which is a continuation of Ser. No. 493,820, Aug. 1, 1974, abandoned, which is a continuation of Ser. No. 309,839, Nov. 27, 1972, abandoned, which is a continuation-in-part of Ser. No. 19,169, Mar. 13, 1970, abandoned. This application Dec. 7, 1979, Ser. No. 101,393
Int. Cl.³ B03C 1/00
U.S. Cl. 209—214 **3 Claims**



1. In a method for brightening clay by removing therefrom weakly magnetically susceptible impurities at least one of iron and titanium mineral contaminants by dispersing the clay in an aqueous medium to form a slurry, passing the slurry through a magnetic separator having ferromagnetic pole members and having a magnetic field of at least 7,000 gauss to remove at least one of said mineral contaminants, the improvement comprising:

(a) forming said slurry as about a 10–40% solids by weight;

(b) disposing a container upright in the magnetic separator between the said ferromagnetic pole members which are spaced apart in a vertical direction with the opposite ends of the container adjacent to and covered by confronting surfaces of said pole members, the container being filled with multitudinous elongate ferromagnetic matrix elements presenting surface irregularities and packed in the container space with each contacting yet also spaced from others so as to constitute a flux conductive matrix that will divert liquid flow into and concentrate flux at myriad points bounding diverse courses of minute width within the container, said matrix elements being selected from the group consisting of corrugated and non-corrugated stainless steel strips, ribbons, or wires, woven steel wire, ribbons, or steel wool, ferromagnetic metal lathing, filings, turnings and meshes; wherein said matrix elements have the capacity of holding in excess of 25% up to 100% of their weight in attracted magnetic particles;

(c) establishing in said matrix between the said pole members a substantially vertically directed magnetic field through said matrix of an average strength of at least 7,000 gauss;

(d) while continuing to subject said matrix to said magnetic field, flowing said slurry continuously into one end of said container and then through said matrix in a generally vertical direction and delivering treated slurry from the other end of said container at a rate sufficient to prevent sedimentation in said container yet such that a substantial portion of said weakly magnetically susceptible impurities are collected and retained on said ferromagnetic matrix

elements, the rate of flow of said slurry being such that it has a retention time in said matrix of from one half to eight minutes;

(e) discontinuing said flow when the extent of removal of said impurities from the slurry flow has substantially diminished;

(f) then while subjecting said matrix to said field, flowing water through said container to rinse out the residual slurry by using a sufficiently gentle flow of water to leave collected particles of impurities on said magnetized elements;

(g) then discontinuing the magnetizing of said matrix and flowing water through said container at an increased velocity sufficient to flush the collected particles out of said container; and

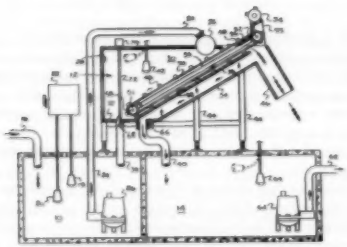
(h) collecting the rinse effluent and the flush effluent from said container separately from the effluent treated slurry and separately from each other.

4,424,125

SEPARATOR APPARATUS

Edward T. Martin, Ontario, Canada, assignor to Axis Products Limited, Georgetown, Canada

Filed Dec. 14, 1981, Ser. No. 330,253
Int. Cl.³ B01D *29/36*
U.S. Cl. 210—104 **8 Claims**



1. Separator apparatus for separating a mixture of liquids and solids and comprising;

a separating tank;

means for passing a mixture of liquids and solids to said separator tank;

screen means in said separator tank dividing said separator tank into a mixture compartment, on one side of said screen means, and a filtrate compartment on the other side of said screen means;

mixture conduit means for removing mixture from said mixture compartment of said separator tank;

filtrate conduit means extending from said filtrate compartment of said separator tank;

scraper mounting frame means adjacent to said screen means;

conveyor means movable on said mounting frame means;

scraper bar means on said conveyor means for moving over said screen means and moving material therefrom, and,

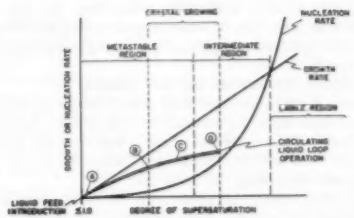
movable frame supporting means at at least one end of said mounting frame means, said mounting frame means being movable in said frame supporting means, whereby to permit said mounting frame means, and said conveyor means and said scraper bars to move momentarily away from said screen means to avoid an obstruction.

4,424,126

APPARATUS FOR REMOVING HEAVY METALS FROM AQUEOUS LIQUIDS

Chakra J. Santhanam, Lexington, and Ravindra M. Nadkarni, Arlington, both of Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

Division of Ser. No. 940,837, Sep. 8, 1978, Pat. No. 4,278,539.
This application Apr. 16, 1981, Ser. No. 254,640
Int. Cl.³ B01D *9/00*
U.S. Cl. 210—195.1 **10 Claims**



1. An apparatus for processing an aqueous feed liquid to precipitate at least one metal sulfide in a form to make said metal sulfide subsequently removeable from said aqueous feed liquid stream by settling and filtration, comprising in combination

a. means defining a circulating liquid loop having in order of liquid flow

at least one mixing zone,

a controlled precipitation initiating zone,

a crystal growing zone, and

a crystal settling zone,

wherein said means defining a circulating liquid loop comprises a reaction crystallizer means said reaction crystallizer means having a cavity therein said cavity comprising

a reaction section,

a central section, and

a bottom section,

said reaction section functioning as said controlled precipitation initiating zone, said central section contiguous with but essentially below said reaction section and functioning as said crystal growing zone and said bottom section contiguous with but essentially below said central section functioning as said crystal settling zone;

a liquid feed line means arranged to discharge said feed liquid into said reaction section of said reaction crystallizer means;

a liquid line arranged to draw off liquid from upper portion of said central section of said reaction crystallizer means, said drawn off liquid being recirculated by said liquid feed line into said reaction section of said reaction crystallizer means;

means for mixing a pH controlling liquid with said drawn off liquid and with said feed liquid producing a resulting feed liquid being of rate controlled pH, said resulting feed liquid being recirculating by said feed liquid line into said reaction section of said reaction crystallizer means, and said means for mixing a pH controlling liquid functioning as said at least one mixing zone;

b. means arranged for drawing off from said reaction crystallizer means excess water-soluble sulfide reactant, used to furnish sulfide ions in said aqueous feed liquid;

c. a holding tank means for holding aqueous feed liquid wherein is contained said at least one metal sulfide and wherein said aqueous feed liquid is introduced into said circulating liquid loop through said liquid feed line;

d. an elutriation leg arranged to receive sulfide magma from said bottom section of said reaction crystallizer means;

e. means for drawing off sulfide magma from said elutriation

leg and introducing said sulfide magma into a clarifier/filter combination means;

f. clarification/filtration means for separating said metal sulfide from said magma thereby to provide an aqueous liquid from which said at least one metal sulfide is removed.

4,424,127

COLUMN FOR LIQUID AND GAS CHROMATOGRAPHY

Johan Roeraade, Sågvägen 4, Tumba, Sweden 147 00

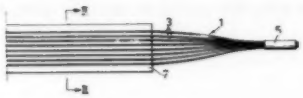
PCT No. PCT/SE81/00067, § 371 Date Nov. 2, 1981, § 102(e) Date Nov. 2, 1981, PCT Pub. No. WO81/02527, PCT Pub. Date Sep. 17, 1981

PCT Filed Mar. 6, 1980, Ser. No. 317,901

Claims priority, application Sweden, Mar. 7, 1980, 8001821

Int. Cl.³ B01D *15/08*

U.S. Cl. 210—198.2 **14 Claims**



1. A gas or liquid chromatography column comprising a plurality of capillary tubes coupled in parallel, the capillary tubes being arranged in the form of a flat band-like device, allowing the column to be bent and rolled up without tensions arising in same, the capillary tubes being adapted at a first end of the column to receive a supply of carrier fluid and at a second end of the column for discharge of separated products.

4,424,128

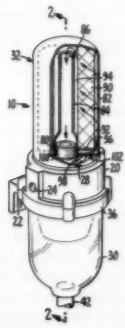
FILTER DEVICE FOR DIESEL ENGINES

Lawrence P. Shinaver, Ceres, Calif., assignor to Applied Diesel Engineering, Inc., San Francisco, Calif.

Filed Sep. 13, 1982, Ser. No. 417,692

Int. Cl.³ B01D *27/08*

U.S. Cl. 210—238 **13 Claims**



1. An improved baffle system for use in an apparatus for separating higher density fluids from lower density fluids wherein said apparatus includes a sediment chamber having an open upper end, said apparatus further including a filter means mounted above and in sealing engagement with said chamber, said apparatus further including an inlet port in communication with said chamber and an outlet port for channeling fluid outwardly from said filter means, said baffle system comprising:

a central tubular member in communication with said inlet port and extending into said sediment chamber; and

cup means disposed concentrically around said central tubular member, said cup means having an open upper end and a bottom wall formed integrally with the outer surface of said tubular member, said bottom wall having a plurality of apertures formed therein, and with the side wall of said cup means being spaced away from the inner surface of said chamber to define a channel therebetween, such that fluid entering said chamber through said central tubular member flows upwardly through said channel towards said filter means whereby heavier density fluids which drop downwardly from the area of said filter means are caught in said cup means and pass through the apertures formed in the bottom wall thereof into said chamber thereby reducing the likelihood of reentrainment in the upward flow of fluids.

6. An improved apparatus capable of separating low density fluids from high density fluids particularly adapted for use with a vehicle fuel filter, said apparatus including a sediment chamber having an open upper end covered by a plate means, with the plate means having a fluid inlet port in communication with the chamber and a fluid outlet port, said plate means having a passageway formed therein to permit fluid to flow upwardly from said chamber therethrough, said improvement comprising:

elongated cartridge means enabling one step, screw-off removability, while eliminating the formation of air pockets, said cartridge means being threadably mounted on said plate means and covering said passageway therein,, said threadable mounting providing one step screw-off removability, said cartridge means including;

an elongated central tube with the lower end thereof being in communication with the outlet port of said plate means, and with said central tube having a fluid entry means located adjacent the upper end thereof, said fluid entry means for inhibiting the formation of air pockets; and

a tubular filter element surrounding said central tube, such that fluid leaving said chamber passes through the passageway in said plate means and into said filter element of said cartridge means, whereupon said fluid enters the upper end of said central tube through said entry means prior to exiting said tube through said outlet port.

4,424,129

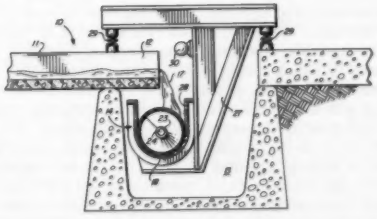
DEWATERING APPARATUS FOR WASTE RECOVERY SYSTEMS

Richard E. Bunger, 5202 E. Washington St., Phoenix, Ariz. 85034

Filed Jun. 28, 1982, Ser. No. 392,551

Int. Cl.³ B01D *35/20, 21/14*

U.S. Cl. 210—388 **1 Claim**



1. Apparatus for transporting and dewatering a liquid-solid material mixture comprising:

an elongated screen in the shape of a trough,

an auger comprising a plurality of flightings journaled for rotation in said trough with the flightings of said auger providing a positive pitch along the length of said trough,

said screen comprising a U-shaped configuration mounted to closely surround said flightings and receiving therewithin, and over at least a part of, said flightings at points along its length the material mixture,

said flightings having outside edges that upon rotation of

said auger move over the inside periphery of said screen, and

brush means detachably mounted on the edges of said flightings for brushing over perforations in said screen to aid in keeping them open for draining liquid from the material mixture,

said screen being formed of stainless steel bars spacedly arranged in a direction longitudinal of said auger with the edges of said bars forming the outer periphery of said screen being tapered toward each other to provide an orifice between juxtapositioned bars of between 0.005 and 0.060 inches in width, and

a frame,

spring means for resiliently mounting said frame in a ditch, means for mounting said trough on said frame, and

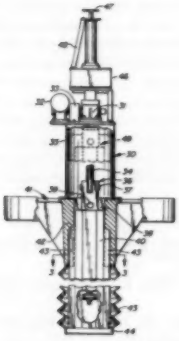
a vibratory means connected to said frame for vibrating said screen to aid in keeping the openings therein clear of the separate portions of the material mixture.

4,424,130

RAKE DRIVE AND LIFTING DEVICE FOR SEDIMENTATION APPARATUS

Donald L. King, Bountiful, Utah, assignor to Envirotech Corporation, Salt Lake City, Utah

Filed Sep. 2, 1982, Ser. No. 414,149
Int. Cl.³ B01D *21/06*
U.S. Cl. 210—531 **18 Claims**



1. An improved sedimentation apparatus generally including a sedimentation basin having a central upright axis, a rake assembly adapted to be rotated within the basin about said axis, and a drivehead connected to said rake assembly for rotating the rake assembly, wherein the improvement comprises said drivehead including a drive motor, a drive gear member, and an annular horizontally mounted drive hub in fixed axial relationship with the central axis of the basin, a vertically-extending torque plate having vertical edges slidably affixed within a slot means in said hub, said torque-plate having attachment means for affixing said rake assembly thereto and means attached to said torque plate for raising the torque plate through said slot means, whereby said torque-plate can both rotate and raise said rake assembly while subjected to operating loads.

4,424,131

LIQUID-LIQUID EXTRACTION METHOD AND APPARATUS

James L. Baird, Winchester, Mass., assignor to Artisan Industries Inc., Waltham, Mass.

Filed Dec. 18, 1978, Ser. No. 970,543
Int. Cl.³ B01D *11/04*; C10G *21/30*
U.S. Cl. 210—634 **18 Claims**

1. In a method of liquid-liquid extraction, which method comprises:

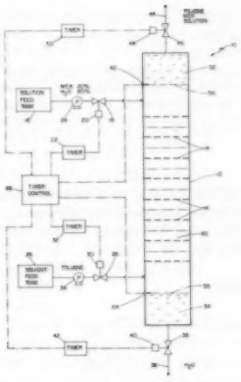
(a) introducing a light-phase liquid into the bottom section of a liquid-liquid extraction column;

(b) introducing a heavy-phase liquid into the top section of the liquid-liquid extraction column;

(c) withdrawing a light-phase solution from the top section of the liquid-liquid extraction column;

(d) withdrawing a heavy-phase solution from the bottom section of the liquid-liquid extraction column, wherein one of the solutions withdrawn contains material extracted from either the light- or heavy-phase liquid by the other phase, and wherein the heavy and light phases are substantially immiscible in one another, but wherein a material to be extracted in either the light or heavy phase is soluble into the other phase, so that, on contact between the light and heavy phase, as they move countercurrent in the column, a material is extracted from one phase into the other phase and is withdrawn from the column; and

(e) pulsing separately and independently, in-sequence over a defined pulse time period, the light and heavy phases, to



provide intimate mixing of the light and heavy phases as they move throughout the column countercurrent to each other, and providing a nonpulse time period of defined length between the pulsing of the light and heavy phases, to provide coalescence of the intimately mixed light and heavy phases, so as to form interfaces between the light and heavy phases after each mixing pulse, the improvement which comprises

introducing the heavy phase and withdrawing the heavy-phase solution or introducing the light phase and withdrawing the light-phase solution by the opening and closing of the valves at the same time, while opening and closing the valves controlling the introduction and withdrawal of the other solution, for a time period based on the percent of phase-volume change occurring in the liquid-liquid extraction between the light and heavy phases, to provide for a continuous liquid-liquid extraction process, without substantial movement of the interfaces between the light and heavy phases during the process.

4,424,132
APPARATUS AND METHOD FOR SEPARATING BLOOD COMPONENTS

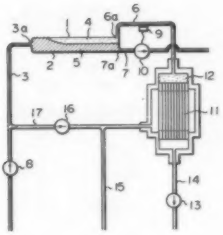
Norio Iriguchi, Fuji, Japan, assignor to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jan. 29, 1982, Ser. No. 344,081

Claims priority, application Japan, Feb. 5, 1981, 56-16190; Sep. 4, 1981, 56-140047

Int. Cl.³ B01D *21/00*

U.S. Cl. 210—800 **8 Claims**



1. An apparatus for separating blood components by means of sedimentation action due to gravitational force, comprising:

a sealed vessel;

a horizontally arranged blood flow channel comprising a flat empty space of 50 to 500 ml contained inside the sealed vessel, the space having a thickness of 0.2 to 20 mm and a width of 50 to 500 mm for separating said blood components into a supernatent layer comprising platelet rich plasma, and a sedimentation layer comprising blood corpuscles containing erthrocytes and leucocytes;

an opening for feeding blood horizontally into the upstream side of the blood flow channel; and

at least two openings for discharge lines of the separate blood components provided at the downstream side of the blood flow channel, one of said openings located at the uppermost portion of said downstream side for discharging said supernatent layer, and another of said openings located at the lowermost portion of said downstream side for discharging said sedimentation layer.

4. A method for separating blood components by means of sedimentation action due to gravitational force, comprising the steps of:

continuously passing blood to be separated at a temperature of 35° to 42° C. horizontally through a blood flow channel comprising a flat empty space of 50 to 500 ml, the space having a thickness of 0.2 to 20 mm and a width of 50 to 500 mm, while the blood flow channel is filled up, the residence time of the blood flow in the blood flow channel being within the range of 2 through 20 minutes; separating the blood flow into a supernatent layer comprising platelet rich plasma, and a sedimentation layer comprising blood corpuscles containing erythrocytes and leucocytes, and removing said supernatent layer and said sedimentation layer from the downstream side of said blood flow channel.

4,424,133
FIRE-FIGHTING COMPOSITIONS

David J. Mulligan, Bentham Lancaster, England, assignor to Angus Fire Armour Limited, Thame, England

Filed Sep. 22, 1981, Ser. No. 304,642

Claims priority, application United Kingdom, Sep. 30, 1980, 8031466

Int. Cl.³ A62C *1/00*; A62D *1/00*

U.S. Cl. 252—8.05 **17 Claims**

1. A fire-fighting film-forming composition which comprises in an aqueous medium a blend of a hydrolysed protein and an ampholytic sulphonamide fluorosurfactant falling within the general formula:

$$C_6F_{13}\text{-}(CH_2)_2\text{-}SO_2\text{-}N(H \text{ or } CH_3)\text{-}(CH_2)_2 \text{ or } 3\text{-}N^+(CH_3)_2\text{-}(CH_2)_{1\text{-}3}\text{-}COO^-,$$

said fluorosurfactant, when as a 0.1% aqueous solution, being film-forming on cyclohexane at normal temperatures, said composition being substantially free of fluorine-free surfactants.

4,424,134
AQUEOUS FABRIC SOFTENING COMPOSITIONS

Margaret P. Sissin, Dayton, and Richard D. Walker, Wyoming, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jun. 15, 1983, Ser. No. 504,649

Int. Cl.³ D06M *13/46, 13/28*

U.S. Cl. 252—8.8 **10 Claims**

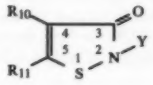
1. An aqueous fabric softener composition comprising:

(a) water;

(b) at least 1% of one or more cationic fabric softeners;

(c) at least 0.05% of one or more amines; and

(d) a 3-isothiazolone compound having the formula:



wherein

Y is selected from the group consisting of unsubstituted and substituted alkyl, alkenyl, and alkynyl groups of 1 to 18 carbon atoms, unsubstituted and substituted cycloalkyl groups having a 3 to 6 carbon ring and up to 12 carbon atoms, unsubstituted and substituted aralkyl groups of up to 10 carbon atoms, and unsubstituted and substituted aryl groups of up to 10 carbon atoms,

R_{10} is selected from the group consisting of hydrogen, halogen, and (C_1–C_4) alkyl groups,

R_{11} is selected from the group consisting of hydrogen, halogen, and (C_1–C_4) alkyl groups, and

the salts of said 3-isothiazolone compounds;

wherein the said composition has a pH below about 6.

4,424,135
EMULSIFIER SYSTEM FOR THE TERTIARY RECOVERY OF OIL

Harvey E. Alford, Amherst, and Harley F. Hardman, Lyndhurst, both of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Continuation of Ser. No. 97,030, Nov. 21, 1979, abandoned. This application Aug. 13, 1981, Ser. No. 292,480

Int. Cl.³ E21B *43/22*

U.S. Cl. 252—8.55 D **2 Claims**

1. In an emulsifier system for use in the tertiary recovery of oil comprising about 0.5 to 12 parts by weight of a surfactant and one part by weight of an alcohol cosurfactant, said surfactant being a neutralized air-oxidized solvent extracted oil wherein the solvent extracted oil has a viscosity between about 50 SUS at 100° F. and 250 SUS at 210° F., wherein the oxidation reaction is conducted at a temperature from about 250° F. to 350° F. and wherein the oxidized oil has an acid number of 10–40 before neutralization the improvement wherein said alcohol cosurfactant comprises a mixture of alkanols having from 2 to 8 carbon atoms, wherein the mixture contains no more than 55 percent of any one alcohol and has the following alcohol distribution:

C_2—0–25%

C_3—9–25%

C_4—40–70%

C_5—0.1–12%

C_6—0.1–10%

C_8—0.1–10%, and

wherein said emulsifier system forms an emulsified phase comprising emulsifier, solubilized hydrocarbon, and brine over a range of brine concentrations of at least 5 weight percent NaCl in water.

4,424,136

LITHIUM GREASE CONTAINING PARAFFINIC OILS

Eduardo M. Barreiro, Burzaco, and Pedro El Juri, Buenos Aires, both of Argentina

Filed Jun. 4, 1982, Ser. No. 385,307

Claims priority, application Argentina, Jun. 4, 1981, 285588

Int. Cl.³ C10M 5/14

U.S. Cl. 252—41 1 Claim

1. A lithium grease containing paraffinic oils, thickeners and lithium compounds, which comprises crystallization modifiers consisting of lattice modifiers formed by mineral acids whose viscosity is between 20 and 1500 Seconds Saybolt Universal (SSU) at 37.8° C. and in percentages by weight between 0.01 and 5%, and polarity modifiers of the oil formed by alkyl (C_7–C_{20}) benzenes with a viscosity of 20 to 280 seconds Saybolt Universal (SSU) at 37.8° C., in percentages by weight between 0.01 and 10%, and aromatic extracts which are residues of extraction with furfural of lubricating oils, of a viscosity between 800 and 10,000 seconds Saybolt Universay (SSU) at 37.8° C., in percentages by weight between 0.01 and 8%.

4,424,137

ACRYLIC PREPOLYMER AND PROCESS FOR ENCAPSULATION OF PHOTOCELLS

Michel Avenel, Gisors; Paul Evrard, Fourqueux, and Jean-Paul Leca, Mantes la Jolie, all of France, assignors to Societe Chimique des Charbonnages—CdF Chimie, Paris la Defense, France

Filed Mar. 5, 1982, Ser. No. 354,922

Claims priority, application France, Mar. 5, 1981, 81 04392

Int. Cl.³ C08F 120/06, 20/10, 120/10

U.S. Cl. 252—182 6 Claims

1. An acrylic prepolymer comprising:

from 10 to 50% by weight of units derived from at least one alkyl acrylate, the alkyl group having from 4 to 12 carbon atoms,

from 30 to 60% by weight of units derived from at least one alkyl methacrylate, the alkyl group having from 1 to 5 carbon atoms, and

from 10 to 40% by weight of units derived from methyl acrylate.

4,424,138

DRYING PROCESS AND PRODUCT

John P. Candlin, Aston near Stevenage; Anthony D. Caunt, Welwyn Garden City, and Peter L. Law, Cambridge, all of England, assignors to Imperial Chemical Industries PLC, London, England

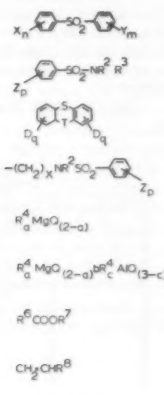
Filed Mar. 11, 1981, Ser. No. 242,528

Claims priority, application United Kingdom, Mar. 24, 1980, 8009838; Feb. 18, 1981, 8105020

Int. Cl.³ C08F 4/64

U.S. Cl. 502—162 13 Claims

1. A process for the preparation of a solid particulate material containing a compound of a transition metal which comprises forming a suspension from an inert liquid medium, particles of at least one solid material and a material which assists in the agglomeration of the solid particles, wherein the solid material is, or contains, a titanium halide selected from the group consisting of titanium trichloride, a solid titanium trichloride-containing material and a product of contacting titanium tetrachloride with a support which is silica, alumina, magnesia, a mixture or complex of two or more thereof, or



magnesium chloride, spray-drying the suspension and collecting a spray-dried solid material.

4,424,139

CATALYST COMPRISING A PHOSPHATE AND WITH A BIS-(CYCLOPENTADIENYL)CHROMIUM(II) COMPOUND

Max P. McDaniel, and James N. Short, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Mar. 30, 1982, Ser. No. 363,681

Int. Cl.³ C08F 4/02

U.S. Cl. 502—117 36 Claims

1. A catalyst system comprising:

(a) a catalyst comprising a bis-(cyclopentadienyl)chromium-(II) compound and a phosphate-coptaining support; and

(b) a cocatalyst selected from trihydrocarbyl borane compounds and aluminum compounds of the formula AlR'_nX_{3-n} where X is a hydride or halide, R' is a 1 to 12 carbon atom hydrocarbyl radical and n is an integer of 1 to 3.

4,424,140

STABILIZATION OF POLYCONDENSATION CATALYSTS

Kurt Weinberg, Upper Saddle River, N.J., and Gordon C. Johnson, Armonk, N.Y., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Jun. 3, 1982, Ser. No. 384,502

Int. Cl.³ C08F 4/16

U.S. Cl. 502—155 15 Claims

1. A polycondensation catalyst/stabilizer composition for the preparation of a high molecular weight light colored polyethylene terephthalate comprising (1) a metal containing polycondensation catalyst wherein the metal is selected from the group consisting of titanium, zirconium, germanium, tin and mixtures thereof compound and (2) a stabilization composition which is the reaction product of phosphoric acid, metaphosphoric acid, superphosphoric acid, polyphosphoric acid or mixtures thereof and an aliphatic epoxide having between 2 and about 10 carbon atoms.

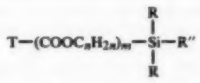
5. The catalyst stabilizer composition of claim 1 wherein the metal containing polycondensation catalyst is a coordination complex of (A) and (B), wherein:

(A) is a metal alkoxyl halide selected from the group consisting of

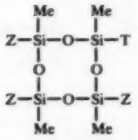
$M(OR)_aX_b$

wherein M is at least one of titanium zirconium, germanium and tin; R is alkyl, aryl, alkylaryl, arylalkyl and haloalkyl having between 2 to 20 carbon atoms; a and b are integers having a value of from 1 to 3; the sum of (a+b) is equal to or less than the integer 4; X is at least one of F, Cl, Br or I;

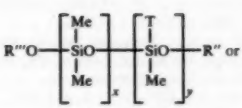
(B) is a silicon compound selected from the group consisting of:



(I)



(II)

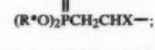


(III)

$QCH_2CH_2SiR_3$** (IV)

wherein

T is CH_2=CX— or



X is hydrogen or methyl and is methyl only when m is one;

R* is alkyl or haloalkyl having from 1 to 4 carbon atoms;

R** is methyl, ethyl, butyl acetoxy, methoxy, ethoxy, or butoxy;

R is methyl, ethyl, butyl, methoxy, ethoxy, butoxy, or trimethylsiloxy;

R' is methyl, methyoxy, ethoxy, butoxy or trimethylsiloxy;

R'' is methoxy, ethoxy, butoxy, trimethyl-siloxy or vinyl dimethylsiloxy;

R''' is methyl, ethyl, butyl, or trimethyl-silyl;

Me is methyl;

Z is methyl or T;

Q is an NH_2CH_2—, $NH_2CH_2NHCH_2$—, NC—, HS— or $HSCH_2CH_2S$— group;

n is an integer having a value of from 2 to 5;

m is an integer having a value of zero or one;

x is an integer having a value of from 1 to 100; and

y is an integer having a value of from 1 to 100;

wherein the mole ratio of A:B in said coordination complex is between about 2:1 and about 1:10.

4,424,141

PROCESS FOR PRODUCING AN OXIDE COMPLEX CATALYST CONTAINING MOLYBDENUM AND ONE OF BISMUTH AND TELLURIUM

Robert K. Grasselli, Chagrin Falls; Dev D. Suresh, Macedonia, and Maria S. Friedrich, Lyndhurst, all of Ohio, assignors to The Standard Oil Co., Cleveland, Ohio

Filed Jan. 5, 1981, Ser. No. 222,821

Int. Cl.³ B01J *21/02, 23/18, 23/28, 27/18*

U.S. Cl. 502—205 **10 Claims**

1. In a process for producing a first stage oxide complex catalyst containing molybdenum and one of bismuth and tellurium in which a pre-catalyst precipitate or gel derived from a pre-catalyst slurry is calcined in an oxygen-containing gas to produce said catalyst, the improvement wherein the liquid medium of said slurry comprises methanol, ethanol or mixtures thereof, said oxide complex catalyst containing bismuth and having the formula

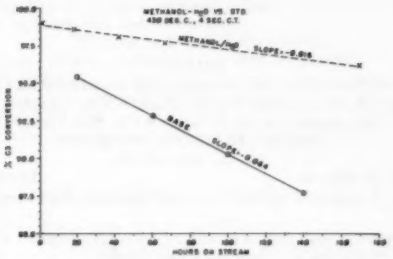
$$A_aG_bL_cD_dE_eQ_fO_x$$

wherein

A is an alkali metal, Tl, Cu, Ag and mixtures thereof;

G is Ni, Co, Mn, Mg, a Group IIA element, IIB element or mixtures thereof;

L is Fe, Cr, Ce, V and/or Eu;



D is Bi, Te or mixtures thereof;

E is P, As, B, Sb, Ge, Sn, Si, Ti, Zr, rare earth and/or U or mixtures thereof;

Q is Mo and/or W; and

wherein

a is 0.001–2,

b is 0.01–10,

c is 0.01–8,

d is 0.1–8,

e is 0–3, and

f is 11–13.5.

x is determined by the valence state of the other elements present.

4,424,142

CATALYST FOR HYDROTREATMENT OF HEAVY HYDROCARBON OILS

Sachio Asaoka; Yoshimi Shiroto; Munekazu Nakamura, all of Yokohama, and Takeo Ono, Kawasaki, all of Japan, assignors to Chiyoda Chemical Engineering & Construction Co., Ltd., Yokohama, Japan

Division of Ser. No. 84,764, Oct. 15, 1979, Pat. No. 4,326,991. This application Mar. 12, 1981, Ser. No. 242,987

Claims priority, application Japan, Dec. 13, 1978, 53-153200

Int. Cl.³ B01J *23/22, 23/88, 27/04*

U.S. Cl. 502—84 **11 Claims**

1. A catalyst for the hydrotreatment of heavy hydrocarbon oils consisting essentially of at least about 2% by weight of vanadium in the form of vanadium sulfide represented by the general formula:

$$VS_x$$

wherein x represents a S/V atomic ratio of about 1.10 to 1.59, which is supported on a substrate comprising as a major component a porous clay mineral consisting essentially of magnesium silicate and having a double-chain structure.

4,424,143

CATALYST FOR OXYCHLORINATION OF ETHYLENE

Ken Shiozaki, Hyogo, and Akira Ohnishi, Kakogawa, both of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Mar. 31, 1982, Ser. No. 364,028
Claims priority, application Japan, Apr. 6, 1981, 56-51971
Int. Cl.³ B01J 27/10
U.S. Cl. 502—225 3 Claims

1. A catalyst for use in the preparation of 1,2-dichloroethane from ethylene in a fixed-bed oxychlorination system which contains cupric chloride, potassium chloride and cesium chloride in a $CuCl_2$/KCl/CsCl ratio of 1:0.1 to 0.5:0.1 to 0.5 by weight.

4,424,144

PREPARATION OF BINDERLESS 3A ADSORBENTS

James N. Pryor, Catonsville, and Chang W. Chi, Columbia, both of Md., assignors to W. R. Grace & Co., New York, N.Y.

Filed Nov. 16, 1981, Ser. No. 322,003
Int. Cl.³ B01J 20/18
U.S. Cl. 502—68 12 Claims

1. A process of making 3A zeolite binderless beads comprising

forming beads from a mixture of 4A zeolite powder, a clay binder and a sodium hydroxide solution;

treating the beads with additional sodium hydroxide to convert the clay binder to a 4A zeolite to provide a 4A binderless bead;

partially exchanging the 4A binderless bead with a calcium containing solution to form an intermediate bead product;

exchanging the intermediate bead product with a potassium exchanging solution selected from the group consisting of an aqueous solution of a potassium salt, a potassium hydroxide solution and mixtures thereof to obtain a 3A zeolite binderless bead; and

recovering and activating the potassium exchanged bead product.

6. The adsorbent 3A binderless bead made by the process of claim 1.

4,424,145

CALCIUM INTERCALATED BORONATED CARBON FIBER

Ramond V. Sara, Parma, Ohio, assignor to Union Carbide Corporation, Danbury, Conn.

Continuation of Ser. No. 276,158, Jun. 22, 1981, abandoned.
This application Apr. 25, 1983, Ser. No. 486,459
Int. Cl.³ D01F 9/14, 11/00
U.S. Cl. 252—509 7 Claims

1. A mesophase pitch derived carbon fiber which has been boronated and intercalated with calcium, wherein said fiber contains from about 0.1% by weight to about 10% by weight boron and the calcium to boron weight ratio in said fiber is about 2:1.

3. A method of producing a mesophase pitch derived carbon fiber having a low resistivity and excellent mechanical properties, comprising the steps of:

producing a mesophase pitch derived carbon fiber from a mesophase pitch having a mesophase content of at least 70% by weight mesophase;

boronating said fiber to contain from about 0.1% by weight to about 10% by weight boron; and

intercalating said fiber with calcium so that the calcium to boron weight ratio in said fiber is about 2:1.

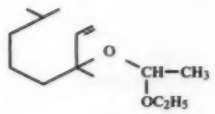
4,424,146

ACETALDEHYDE ETHYL 6-DIHYDROLINALYL ACETAL PERFUME COMPOSITIONS

Brian J. Willis, Ramsey; Michael R. Britten-Kelley, Metuchen, both of N.J., and Odd Hansen, Jackson Heights, N.Y., assignors to Fritzsche Dodge & Olcott Inc., New York, N.Y.

Filed Oct. 7, 1981, Ser. No. 309,388
Int. Cl.³ A61K 7/46; C11B 9/00; C07C 43/00, 79/34
U.S. Cl. 252—522 R 2 Claims

1. The compound acetaldehyde ethyl 6-dihydrolinalyl acetal, having the formula:



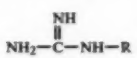
4,424,147

STABILIZATION OF PERCHLOROETHYLENE DIELECTRIC FLUIDS

Robert A. Kurz, Hermitage Township, Mercer County, and Anthony J. Palumbo, Hermitage, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 31, 1982, Ser. No. 413,592
Int. Cl.³ H01B 3/24
U.S. Cl. 252—575 12 Claims

1. A method of protecting copper and synthetic organic polymers from attack by perchloroethylene comprising adding to said perchloroethylene about 20 to about 1000 ppm of a compound having a general formula



where R is

4,424,148

PROCESS FOR PREPARING WASTES FOR NON-POLLUTANT DISPOSAL

Terry L. Rosenstiel, Mount Prospect, and Allen A. G. Debus, Northbrook, both of Ill., assignors to United States Gypsum Company, Chicago, Ill.

Filed Feb. 17, 1981, Ser. No. 235,052
Int. Cl.³ C09K 11/04
U.S. Cl. 252—628 14 Claims

1. A process for preparing fluid hazardous wastes substances for containerized storage, transport and final disposition in which liquid or finely divided solid wastes are mixed with a binder and water, and allowed to set to a hardenable mass; characterized by combining as a setting, hardenable binder mass when mixed with water:

about 90–60 weight percent calcium sulfate hemihydrate;

about 10–40 weight percent water-dispersible melamine-formaldehyde resin which when cured is hydrophobic;

and an amount sufficient to cure the resin of a cross-linking agent for said resin.

10. A process for binding a fluid organic substance with gypsum comprising the addition of about 1–15%, by volume of the organic fluid, of a nonionic surfactant to a mixture of calcium sulfate hemihydrate and water, said surfactant being a polyethoxy alkylphenol having about 3–30 ethylene oxide

units per phenol unit and alkyl is aliphatic containing about 8 to 22 carbon atoms.

4,424,149

METHOD FOR ULTIMATE DISPOSITION OF BORATE CONTAINING RADIOACTIVE WASTES BY VITRIFICATION

Dietmar Bege, Erlangen; Hans-Joachim Faust, Grossgeschaid; Anwer Puthawala, and Helmut Stünkel, both of Erlangen, all of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed Jun. 9, 1981, Ser. No. 271,822

Claims priority, application Fed. Rep. of Germany, Jun. 20, 1980, 3023183; Jul. 16, 1980, 3026968

Int. Cl.³ G21F 9/16

U.S. Cl. 252—629 2 Claims

1. Method for ultimate disposition of radioactive wastes by vitrification of weak-to-medium active concentrates containing boron together with ion exchange resins, which comprises mixing weak-to-medium active radioactive waste concentrates from borate-containing radioactive liquids with added glass-forming materials, maximally in a ratio of 1 part by weight waste concentrates to 3 parts by weight glass-forming materials, to form a glass composition in which the borate in said waste concentrate is an essential element in production of glass from the composition, before subjecting said glass composition to a melting operation, adding ion exchanger resins in an amount up to about 10 weight percent of the total mass, treating the resultant glass composition containing ion exchanger resins to obtain a glass-forming melt, and withdrawing and purifying waste gases evolved during said melting operation.

4,424,150

ACETAMINOPHEN ANALOGS, ANTIGENS, AND ANTIBODIES

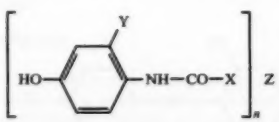
Pyare Khanna, San Jose, Calif., assignor to Syva Company, Palo Alto, Calif.

Filed Apr. 2, 1982, Ser. No. 364,836

Int. Cl.³ C07G 7/00

U.S. Cl. 260—112 R 17 Claims

1. A compound of the formula



wherein:

X is methyl or —R—$(CO)_m$

Y is —R^1—CO—NH—$R^2(CO)_m$ when X is methyl, and hydrogen when X is —R—$(CO)_m$

R, R^1, and R^2 are independently aliphatic linking groups of from 1 to 12 carbon atoms each;

Z is a poly(amino acid) residue which is an antigen;

m is zero or one when Z is a poly(amino acid) residue, and is otherwise one; and

n is an integer ranging from one to a value approximately equal to the molecular weight of Z divided by 500 when Z is a poly(amino acid), and is otherwise one.

4,424,151

HEAT GELLABLE PROTEIN ISOLATE

Jennifer M. Grealy, Gores Landing; Terrence J. Maurice, Colborne, and Chester D. Myers, Ajax, all of Canada, assignors to General Foods Inc., Don Mills, Canada

Filed Feb. 16, 1982, Ser. No. 348,875

Int. Cl.³ A23J 1/12, 1/14

U.S. Cl. 260—123.5 21 Claims

1. A vegetable protein isolate containing at least about 90% by weight of vegetable protein (as determined by Kjeldahl nitrogen×6.25) and capable of forming heat set gels from dispersions thereof, which gels have a hardness value which is at least that of a heat set gel formed from a dispersion of egg white in water having the same dispersion concentration.

4,424,152

METAL COMPLEX DYESTUFFS, PROCESSES FOR THEIR PREPARATION AND THEIR USE FOR DYEING NITROGEN-CONTAINING MATERIALS

Winfried Mennicke, and Hermann Goebel, both of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

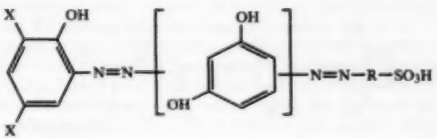
Filed Jul. 9, 1981, Ser. No. 281,615

Claims priority, application Fed. Rep. of Germany, Aug. 1, 1980, 3029271

Int. Cl.³ C09B 45/28, 45/32

U.S. Cl. 260—148 3 Claims

1. Metal complexes of disazo dyestuffs of the formula



wherein

one X=chlorine and

the other X=NO_2, or

both the radicals X=chlorine, and

R=the radical of a diazo component of the benzene, naphthalene or diphenylamine series which, in the o-position relative to the azo group, is free from groups which from metal complexes.

4,424,153

1:2 CHROMIUM COMPLEX DYES CONTAINING SULFONIC ACID GROUPS

Hans Baumann, Wachenheim, and Klaus Grychtol, Bad Durkheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

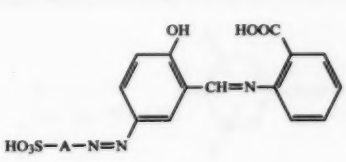
Filed Aug. 24, 1981, Ser. No. 295,373

Claims priority, application Fed. Rep. of Germany, Sep. 10, 1980, 3034002

Int. Cl.³ C09B 45/14

U.S. Cl. 260—149 3 Claims

1. A 1:2 chromium complex dye of an arylazo-azamethine of the general formula:



as a salt;

where A is naphthalene or benzene radical which may be monosubstituted or polysubstituted by alkyl, alkoxy or halogen.

4,424,154
AZO DYE HAVING A 3-CYANO- OR 3-CARBAMOYL-2,6-DIAMINOPYRIDINE COUPLING COMPONENT

Johannes Dehnert, Ludwigshafen; Hermann Löffler, Speyer, and Gunther Lamm, Hassloch, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Rheinland-Pfalz, Fed. Rep. of Germany

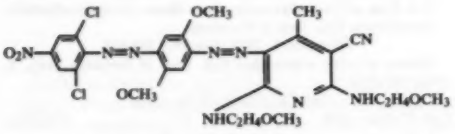
Filed Jun. 21, 1979, Ser. No. 50,866

Claims priority, application Fed. Rep. of Germany, Jul. 21, 1978, 2832020

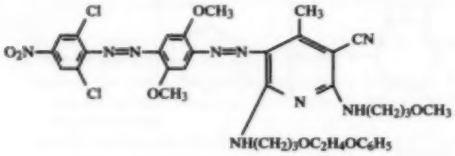
Int. Cl.³ C09B *31/153;* **D06P** *1/04, 1/16, 3/54*

U.S. Cl. 260—156 **3 Claims**

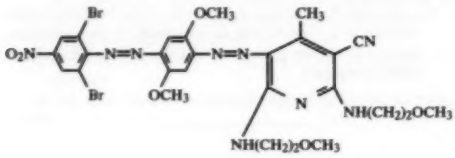
1. A dye of the formula:



2. A dye of the formula:



3. A dye of the formula:



4,424,155
AMINOAZO COMPOUNDS

Walter Kurtz, Bad Durkheim, and Gunther Lamm, Hassloch, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

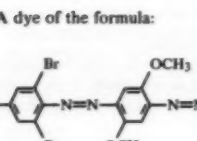
Filed Mar. 4, 1981, Ser. No. 240,316

Claims priority, application Fed. Rep. of Germany, Mar. 15, 1980, 30104

Int. Cl.³ C09B *29/00*

U.S. Cl. 260—157 **2 Claims**

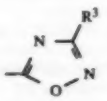
1. An aminoazo compound of the general formula:



wherein:

A is the radical of a diazo component or coupling component,

R is a radical of the formula:



wherein:

R^1 is unsubstituted or substituted alkyl, alkenyl, cycloalkyl or aryl,

R^3 is hydrogen or a radical R^1;

Z is amino, or

X is hydrogen, chlorine, bromine, methoxy, ethoxy, propoxy, butoxy, phenoxy, methyl, ethyl, propyl, butyl, acetylamino, dimethylamino, diethylamino, carboxyl or $-NO_2$.

4,424,156
HALO-SUBSTITUTED AMINO-AND SUBSTITUTED-SULPHONAMIDO-CONTAINING AZO DYESTUFFS

Rainer Hamprecht, Cologne, and Klaus Leverenz, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

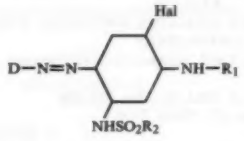
Filed Sep. 10, 1980, Ser. No. 185,660

Claims priority, application Fed. Rep. of Germany, Sep. 25, 1979, 2938633

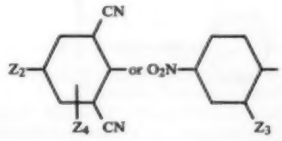
Int. Cl.³ C09B *29/036, 29/039, 29/085, 29/09*

U.S. Cl. 260—205 **4 Claims**

1. An azo dyestuff of the formula



wherein D denotes the radical of a diazo component of the formula



wherein

R_1 denotes C_1–C_6-alkyl, C_1–C_6-chloroalkyl or C_1–C_4-alkoxy-(C_1–C_4)-alkyl,

R_2 denotes C_1–C_4-alkyl, C_1–C_4-chloroalkyl, phenyl, tolyl, xylyl, chlorophenyl, or dichlorophenyl,

Hal denotes Cl or Br,

Z_2 denotes H, methyl, ethyl, Cl, Br or CF_3

Z_3 denotes H, Cl, Br, NO_2, CN, CF_3, $—CO_2—(C_1–C_4)$-alkyl or $—SO_2—(C_1–C_4)$-alkyl, and

Z_4 denotes H, methyl or Cl.

4,424,157
SILICON CONTAINING LACTAMS

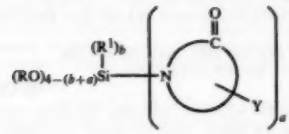
Rack H. Chung, Clifton Park, N.Y., assignor to General Electric Co., Waterford, N.Y.

Filed Jan. 11, 1982, Ser. No. 338,518

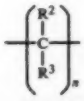
Int. Cl.³ C07D *227/087*

U.S. Cl. 260—239.3 R **4 Claims**

1. A compound having the formula



where R is a $C_{(1-8)}$ aliphatic organic radical selected from the group consisting of alkyl, alkylether, alkylester, alkylketone, and alkylcyano or a $C_{(7-13)}$ aralkyl radical, R^1 is a $C_{(1-13)}$ monovalent hydrocarbon radical, Y is a



radical, where R^2 and R^3 are selected from the group consisting of hydrogen, $C_{(1-12)}$ alkyl, $C_{(1-12)}$ alkenyl, $C_{(1-12)}$ alkylester, $C_{(1-12)}$ alkylether, $C_{(6-12)}$ aryl, $C_{(7-12)}$ alkaryl, and $C_{(7-12)}$ aralkyl radicals, n is an integer that varies from 2 to 4 and 6, 7, 8, a is an integer equal to 1 or 2, b is a whole number equal to 0 or 1, and the sum of a+b is equal to 1 or 2.

4,424,158

PROCESS FOR PREPARING TRIALKYLSILYLDIAZOMETHANES

Takayuki Shioiri, Aichiken; Toyohiko Aoyama, and Shigehiro Mori, both of Nagoyashi, all of Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Jul. 23, 1982, Ser. No. 401,268

Claims priority, application Japan, Jul. 23, 1981, 56-115510

Int. Cl.³ C07D *201/00*; **C07F** *7/10*

U.S. Cl. 260—239 AA **17 Claims**

1. A process for preparing a trialkylsilyldiazomethane, which comprises reacting halomethyltrialkylsilane represented by the formula

$$R^1R^2R^3SiCH_2X$$

wherein R^1, R^2 and R^3 denote an alkyl group of 1 to 4 carbon atoms and X denotes a halogen group, with metallic magnesium to give a Grignard reagent, and reacting the Grignard reagent with diphenyl phosphoric acid azide.

4,424,159

PROCESS FOR THE SYNTHESIS OF THE HYDROXYACETYL SIDE-CHAIN OF STEROIDS OF THE PREGNANE TYPE, NOVEL 21-HYDROXY-20-OXO-17α-PREGNANE COMPOUNDS AND PHARMACEUTICAL PREPARATIONS CONTAINING THEM

Michel Biollaz, Riehen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

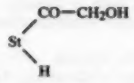
Continuation of Ser. No. 165,906, Jul. 3, 1980, abandoned, which is a continuation of Ser. No. 37,555, May 9, 1979, abandoned. This application Feb. 3, 1982, Ser. No. 345,309

Claims priority, application Switzerland, May 26, 1978, 5778/78

Int. Cl.³ C07J *33/00*, *5/00*

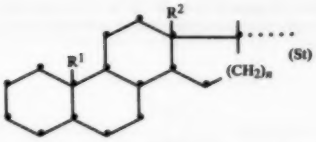
U.S. Cl. 260—239.5 **14 Claims**

1. A process for introducing a 17α- or β-oriented hydroxyacetyl side chain of a 21-hydroxy-20-oxo-pregnane of formula I



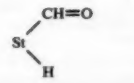
(I)

in which St represents a divalent steroid radical of the formula



in which n is 1 or 2, R^1 represents a hydrogen atom, methyl, a free, esterified or etherified hydroxymethyl, formyl, a formyl protected as acetal or thioacetal, or a free or esterified carboxyl and R^2 represents an aliphatic hydrocarbon radical of 1–3 carbon atoms, a halogenated aliphatic hydrocarbon radical of 1 to 3 carbon atoms, a free, esterified or etherified hydroxymethyl, formyl, a formyl protected as acetal or thioacetal, or a free or esterified carboxyl, and in which the St radical may contain in addition one or more double bonds, halogen atoms, lower alkyl radicals, methylene bridges, free oxo groups, oxo groups protected as ketal or thio-ketal and/or oxido groups, and also a 3α,5-trans-annular simple C-C bond of a cyclosteroid, singly or in combination, at one or more of the positions 1–16, which process comprises:

(a) treating a corresponding carbaldehyde of the formula II



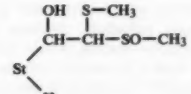
(II)

in which St is the above divalent steroid radical wherein n, R^1 and R^2 have meaning as defined above with the proviso that R^1 does not represent free formyl, R^2 does not represent free formyl or free oxo groups, and the St radical does not contain free oxo groups with formaldehyde dimethylmercaptal S-oxide of the formula

$$CH_3—S—CH_2—SO—CH_3$$

in the form of an alkaline metal salt thereof in an aprotic solvent at a temperature of −50° to +50° C., and

(b) hydrolyzing the resulting intermediate of the formula



in which St has the last said meaning, with a strong acid in the presence of water at a temperature of 0° to 100° C.

4,424,160

PROCESS FOR THE PREPARATION OF 1-HYDROXY-4-AMINO-5(8)-NITROANTHRAQUINONE

Volker Hederich, and Günter Gehrke, both of Cologne, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 16, 1982, Ser. No. 389,130

Claims priority, application Fed. Rep. of Germany, Jul. 9, 1981, 3127127

Int. Cl.³ C07C 97/26

U.S. Cl. 260—380 5 Claims

1. Process for the preparation of 1-hydroxy-4-amino-5- or -8-nitroanthraquinone, characterised in that 1,8-dinitroanthraquinone or 1,5-dinitroanthraquinone respectively or mixtures thereof are treated below 80° C. in SO_3-containing sulphuric acid in the presence of boric acid with reducing agents.

4,424,161

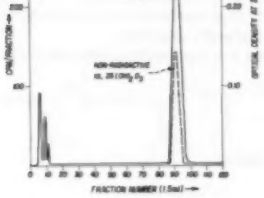
[1β³H] 1α,25 DIHYDROXYVITAMIN D_3 AND METHOD FOR ITS PREPARATION

Michael F. Holick, Sudbury, Mass., assignor to Massachusetts General Hospital, Boston, Mass.

Filed Dec. 10, 1979, Ser. No. 101,525

Int. Cl.³ C09J 9/00

U.S. Cl. 260—397.2 9 Claims



1. [1β-³H]1α,25-dihydroxyvitamin D_3, having a specific activity of 1-20 Ci/mM.

4,424,162

SELECTIVE HYDROGENATION OF FATTY MATERIALS

Bruce I. Rosen, Skokie, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Aug. 31, 1981, Ser. No. 297,883

Int. Cl.³ C11C 3/12

U.S. Cl. 260—409 10 Claims

1. A method of selective hydrogenation of a fatty material selected from the group consisting of edible oils and fats comprising contacting said fatty material with a catalytically effective amount of a zerovalent metal selected from the group consisting of platinum, ruthenium, palladium, rhodium, iridium, and osmium, supported on alpha-alumina, whose surface area is less than about 15 m^2/g with a macropore volume less than about 0.5 ml/g and with greater than about 90 percent of the macropores having a size greater than about 300 angstroms and micropore volume less than about 0.05 ml/g, in the presence of hydrogen under hydrogenation conditions, and recovering the resulting hydrogenated product.

4,424,163

SELECTIVE REDUCTION OF EDIBLE FATS AND OILS

Bruce I. Rosen, Skokie, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Jan. 11, 1982, Ser. No. 338,736

Int. Cl.³ C11C 3/12

U.S. Cl. 260—409 10 Claims

1. A method for the selective reduction of a fatty material comprising contacting under hydrogenation conditions the fatty material with hydrogen and a catalyst which consists essentially of a minor amount from about 1 to about 40 weight percent zerovalent nickel dispersed on a support selected from the group consisting of TiO_2, Ta_2O_5, V_2O_5, and Nb_2O_5, said catalyst having been activated in hydrogen at a temperature from about 325° to about 600° C., and recovering the selectively reduced product.

4,424,164

DIMETHYLDIOCTADECYLAMMONIUM MOLYBDATES

William J. Kroenke, Brecksville, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed Jul. 28, 1982, Ser. No. 402,478

Int. Cl.³ C07F 11/00

U.S. Cl. 260—429 R 3 Claims

1. Dimethyldioctadecylammonium molybdates having the empirical formula

$$[(CH_3)_2(C_{18}H_{37})_2N]_aMo_8O_c$$

where a, b and c are (2,6,19) or (4, 8, 26).

4,424,165

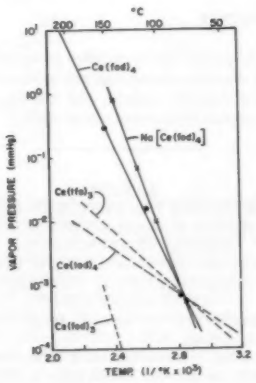
VOLATILE CERIUM COMPLEXES

David A. Thompson, Horseheads, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Sep. 15, 1982, Ser. No. 418,216

Int. Cl.³ C07F 5/00

U.S. Cl. 260—429.2 3 Claims



1. A cerium β-diketonate complex of Ce^{+4} with 6,6,7,7,8,8,8-heptafluoro-2,2-dimethyl-3,5,octanedione (hfod) which has the molecular formula: $Ce(fod)_4$.

2. A β-diketonate complex of Ce^{+3} and M^{+1} with 6,6,7,7,8,8,8-heptafluoro-2,2-dimethyl-3,5-octanedione (hfod), having the molecular formula: $M[Ce(fod)_4]$, wherein M is selected from the group: Na, Li, K, Cs and Rb.

4,424,166
PREPARATION OF 1,1-DIHALOGENO-ALKENES

Fritz Maurer, Wuppertal; Uwe Priesnitz, Solingen, and Hans-Jochem Riebel, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

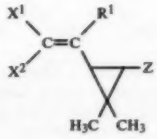
Filed Feb. 23, 1981, Ser. No. 237,005

Claims priority, application Fed. Rep. of Germany, Mar. 12, 1980, 3009487

Int. Cl.³ C07C *121/48, 121/66, 69/743, 61/35*

U.S. Cl. 260—464 **7 Claims**

1. A process for the preparation of a 1,1-dihalogenoalkene of the formula



in which

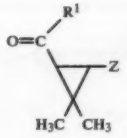
R^1 is a hydrogen atom or an optionally halogen-substituted C_1 to C_5 alkyl radical; an optionally halogen-substituted benzyl or phenylethyl radical; or a phenyl radical which is optionally substituted by halogen, C_1 to C_4 alkyl, C_1 to C_4 alkoxy, cyano and/or nitro;

Z is an cyano or C_1 to C_4 alkoxycarbonyl radical, or a radical of the formula COOM,

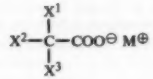
M is a hydrogen atom, an alkali metal, one equivalent of an alkaline earth metal or an ammonium radical, and

X^1 and X^2 each independently is a halogen atom,

consisting essentially of reacting a carbonyl compound of the formula



with a trihalogenoacetate of the formula



in which

X^3 is halogen atom, and

$M^{\oplus}$ is an alkali metal ion or one equivalent of an alkaline earth metal ion,

in the presence of an approximately equimolar amount of a trialkyl phosphite at a temperature between about 0° and 200° C.

4,424,167
PROCESS FOR THE PREPARATION OF 2,3-DICHLOROSULPHONYL-ACRYLONITRILES

Siegfried Oecki, Cologne, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

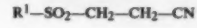
Filed Oct. 26, 1981, Ser. No. 315,314

Claims priority, application Fed. Rep. of Germany, Oct. 31, 1980, 3041155

Int. Cl.³ C07C *121/30, 121/48, 121/70*

U.S. Cl. 260—465 G **11 Claims**

1. A process for the preparation of a 2,3-dichloro-sulphonyl-acrylonitrile which comprises contacting 3-sulphonyl-propionitrile of the formula



wherein

R^1 denotes an aryl radical of 6 to 18 carbon atoms, aralkyl radical wherein the aromatic portion contains 5 to 10 carbon atoms and the alkyl portion contains 1 to 6 carbon atoms, alkyl radical of 1 to 12 carbon atoms or cycloalkyl radical of 5 to 17 carbon atoms, each of which radicals can be substituted by a substituent which is not changed in the process

with a chlorination agent selected from the group consisting of chlorine, a phosphorus chloride and a chlorine derivative of sulfur in the presenc of a tertiary amine basic catalyst at 30° to 130° C.

4,424,168
PREPARATION OF α-CYANO-3-PHENOXY-BENZYL 3-ALKENYL-2,2-DIMETHYL-CYCLOPROPANECARBOXYLATES

Reimer Cölln; Bernd Gallenkamp, and Hans-Joachim Diehr, all of Wuppertal, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

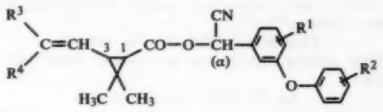
Filed Sep. 13, 1982, Ser. No. 417,766

Claims priority, application Fed. Rep. of Germany, Oct. 2, 1981, 3139314

Int. Cl.³ C07C *121/75*

U.S. Cl. 260—465 D **12 Claims**

1. A process for the preparation of α-cyano-3-phenoxybenzyl 3-alkenyl-2,2-dimethyl-cyclopropanecarboxylate of the formula



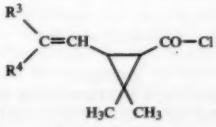
in which

R^1 and R^2 each independently is a hydrogen or halogen atoms,

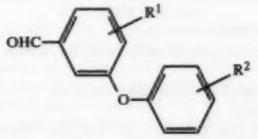
R^3 is a hydrogen or halogen atom or an optionally substituted alkyl group, and

R^4 is a halogen atom, an optionally substituted alkyl or alkenyl group or an optionally substituted phenyl group, or, together with R^3, is an alkanediyl radical,

comprising reacting a 3-alkenyl-2,2-dimethyl-cyclopropanecarboxylic acid-chloride of the formula



with a 3-phenoxy-benzaldehyde of the formula



or an adduct thereof with an alkali metal bisulphite (hydrogen

sulphite or pyrosulphite), and an alkali metal cyanide, in the presence of an alkyl ester of a C_1 to C_6 carboxylic acids and water as diluents at a temperature between about −5° and +25° C.

4,424,169

PREPARATION OF SURFACTANTS

Raymond J. Swedo, Mount Prospect, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Aug. 25, 1982, Ser. No. 411,214
Int. Cl.³ C07C *143/24, 143/52, 143/42*
U.S. Cl. 260—505 R **7 Claims**

1. A process for the preparation of a surfactant which comprises treating oil shale with an aromatic compound in the presence of a Friedel Crafts catalyst at a temperature in the range of from about 50° C. up to the reflux temperature of said aromatic compound and a pressure in the range of from about atmospheric to about 50 atmospheres, separating the resultant alkylated product from the residual oil shale and excess aromatic compound, treating said product with a sulfonating agent selected from the group consisting of sulfur trioxide and sulfuric acid at a temperature in the range of from about ambient to about 50° C. and a pressure in the range of from about atmospheric to about 10 atmospheres, neutralizing the sulfonated product, and recovering the resultant surfactant.

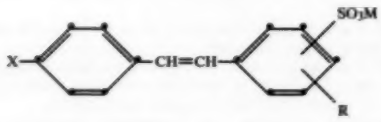
4,424,170

HALOSTILBENE SULFONATES USEFUL AS STARTING MATERIALS FOR MAKING FLUORESCENT WHITENING AGENTS OF THE 4,4'-DISTYRYLBIPHENYL SERIES

Kurt Weber, Basel, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed May 6, 1982, Ser. No. 375,607
Claims priority, application Switzerland, May 14, 1981, 3143/81
Int. Cl.³ C07C *143/29, 143/36*
U.S. Cl. 260—505 C **5 Claims**

1. A silbene compound of the formula



wherein X is halogen, R is hydrogen, —SO_3M, halogen, C_1–C_4alkyl or C_1–C_4alkoxy, and M is hydrogen or a salt-forming cation.

4,424,171

AQUEOUS STORAGE SYSTEMS FOR STORAGE OF GROUND GUAYULE PLANT MATERIAL

Richard Gutierrez, Canal Fulton, and Edward L. Kay, Akron, both of Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

Filed Mar. 5, 1982, Ser. No. 355,078
Int. Cl.³ C08L *7/02*
U.S. Cl. 524—414 **11 Claims**

1. An aqueous guayule plant material storage system comprising:

(a) comminuted guayule plant material;

(b) water; and

(c) at least one inhibitor of offensive odor development selected from the group consisting of protonic acids, acid salts, metal oxides and metal hydroxides.

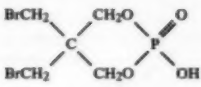
4,424,172

5,5-BIS-(BROMOMETHYL)-2-HYDROXY-2-OXO-1,3,2-DIOXAPHOSPHORINANES AND PROCESS FOR PREPARING SAME

Yuval Halpern, Skokie, Ill., assignor to Borg-Warner Chemicals, Inc., Parkersburg, W. Va.

Filed Jul. 2, 1981, Ser. No. 279,660
Int. Cl.³ C07F *9/15*
U.S. Cl. 260—937 **9 Claims**

1. A dibromo-substituted neopentyl phosphoric acid having the structural formula:



2. A process for preparing a dihalo-substituted neopentyl phosphoric acid comprising reacting stoichiometric quantities of 2,2-bis-(halomethyl)-1,3-propane-diol and phosphorus oxychloride to form the 5,5-bis(halomethyl)-2-chloro-2-oxo-1,3,2-dioxaphosphorinane, reacting said dioxaphosphorinane, in a solvent, with water to form the 5,5-bis(halomethyl)-2-hydroxy-2-oxo-1,3,2-phosphorinane product, and isolating said product, the halo in each case being bromo or chloro.

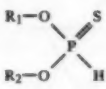
4,424,173

PROCESS FOR PRODUCING O,O-DIESTERS OF THIOPHOSPHORUS ACID

Horst Zinke, Ernstbofen, Fed. Rep. of Germany, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

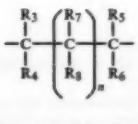
Division of Ser. No. 164,701, Jun. 30, 1980, Pat. No. 4,341,722.
This application Mar. 31, 1982, Ser. No. 363,988
Claims priority, application Switzerland, Jul. 6, 1979, 6351/79
Int. Cl.³ C07F *9/165*
U.S. Cl. 260—985 **5 Claims**

1. A process for producing a compound of formula I



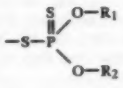
(I)

wherein R_1 and R_2 independently of one another are each C_1–C_{18}-alkyl, C_5–C_{12}-cycloalkyl, phenyl or C_7–C_9-aralkyl each of which is unsubstituted or is substituted by one or two C_1–C_{12}-alkyl groups, or R_1 and R_2 are each C_2–C_{10}-alkoxyalkyl or C_3–C_{20}-alkoxycarbonylalkyl, or R_1 and R_2 together form a bivalent radical of the formula II



(II)

wherein n is nought or 1, and R_3, R_4, R_5 and R_6 independently of one another are each hydrogen, C_1–C_4-alkyl, cyclohexyl or phenyl, and R_3, when n is nought, is also —CH_2Z, in which Z is —XR_{10}, —$N(R_{11})R_{12}$, —S—P(S)—$(OR_{10})_2$ or a group of the formula III

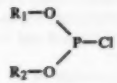


(III)

wherein R_1 and R_2 have the given meanings, and X is oxygen or sulfur, and R_{10}, R_{11} and R_{12} independently of one another

are each C_1–C_{18}-alkyl, C_5–C_{12}-cycloalkyl, phenyl or C_7–C_9-aralkyl each of which is unsubstituted or is substituted by one or two C_1–C_{12}-alkyl groups, or R_{10}, R_{11} and R_{12} are each C_2–C_{10}-alkoxyalkyl or C_3–C_{20}-alkoxycarbonylalkyl, and R_7 and R_8 independently of one another are each hydrogen, C_1–C_4-alkyl, cyclohexyl, phenyl, nitro, cyano, C_2–C_{19}-alkoxycarbonyl, C_2–C_{18}-alkanoyl, or a group of the formula $(R_9—O)_2—P(O)—$, in which R_9 is C_1–C_{18}-alkyl, or R_7 and R_8 together are 2-butenylene or 2-pentenylene, which comprises

(a) dissolving a compound of formula IV



(IV)

wherein R_1 and R_2 have the meanings given above in an inert organic solvent,

(b) subjecting simultaneously the solution of step (a), with vigorous agitation at a temperature of $-10°$ to 40° C., to gaseous ammonia and gaseous hydrogen sulfide till essentially a stoichiometric amount of ammonia and a stoichiometric amount to excess amount of hydrogen sulfide are added, and

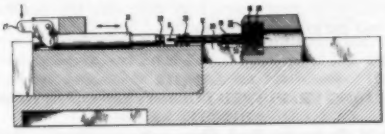
(c) isolating the product.

4,424,174

FABRICATION OF OPTICAL CONNECTORS

Louis E. Howarth, New Providence, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jun. 18, 1982, Ser. No. 389,876
Int. Cl.³ G02B 5/14
U.S. Cl. 264—1.5 **8 Claims**



1. A method of fabricating an optical fiber connector comprising the steps of:

providing a support assembly comprising an alignment wire mandrel, a mandrel holder formed around at least a portion of the wire and having an outer surface concentric therewith, a mandrel sleeve located around at least a portion of said wire and holder and having an outer surface concentric therewith, said sleeve including an end surface for receiving a first precision jewel with an aperture therein, at least a portion of which aperture is concentric with the outer surface of the jewel;

inserting said wire through the aperture in said jewel so that a portion of the wire extends therethrough;

forming a backbone insert around a portion of the mandrel sleeve;

inserting the resulting assembly in molding apparatus including a frusto-conical die which includes at one end wall a second jewel with an aperture which essentially coincides with the axis of the die, the wire being inserted through the aperture in the second jewel;

forming a molded piece-part around the backbone insert and a portion of the first jewel; and

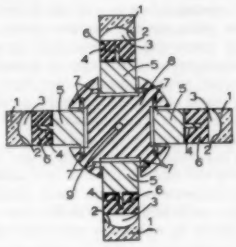
removing the support assembly from the molded part and insert to form a frusto-conical connector including the first jewel at the end surface.

4,424,175

SPIN CASTING

Charles W. Neefe, P.O. Box 429, Big Spring, Tex. 79720

Filed Jul. 27, 1982, Ser. No. 402,233
Int. Cl.³ B29D 11/00
U.S. Cl. 264—2.1 **3 Claims**



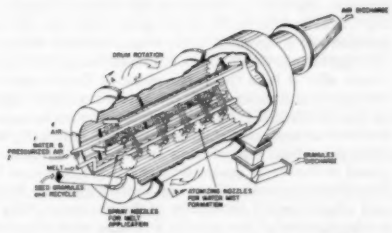
1. A method of reducing the effect of surface tension on the shape of the concave surface of spin cast contact lenses by revolving a plurality of concave lens molds around a common center, the molds concave optical surface being positioned toward the common center of rotation and revolving each lens mold around the intended lens optical axis and perpendicular to the common axis of rotation.

4,424,176

PROCESS FOR GRANULATION OF MOLTEN MATERIALS

Arthur R. Shirley, Jr., Florence, and Frederick T. Carney, Jr., Anderson, both of Ala., assignors to Tennessee Valley Authority, Muscle Shoals, Ala.

Filed Sep. 29, 1982, Ser. No. 427,723
Int. Cl.³ B01J 2/12
U.S. Cl. 264—7 **17 Claims**



1. In an improved process for the granulation of materials wherein same is effected in an enclosed vessel by spraying particles of molten material on rapidly moving granules of substrate such that the granules of substrate are increased in size by accretion as the sprayed particles solidify quickly on the surface of said substrate, and wherein at least a substantial amount of the heat of crystallization and associated heat from cooling the molten material and subsequently solid material is removed by evaporation of water in said enclosed vessel into air being moved through said enclosed vessel which comprises:

(a) atomizing the water to be evaporated in said enclosed vessel into finely divided droplets having a median volume diameter of less than 1.967×10^{-4} ft;

(b) spraying said water droplets with a spray angle, the arc of which is at least 30 degrees;

(c) spraying said water droplets in such a manner that the liquid water comprising same totally evaporates while in said air in a period of time of less than 2 seconds and from

a predetermined juxtaposed position such that no water in the liquid phase contacts either the sprayed particles of molten material or of the substrate granules which are increasing in size by accretion from the solidification of said sprayed particles of molten material, or both;

(d) controlling the moisture content of said air below the dew point of said air everywhere in said enclosed vessel, below the concentration in said air where condensation would take place on any surface inside said enclosed vessel, and below the concentration in said air where granules of substrate of any size or at any point in said enclosed vessel would absorb water from said air, thus preventing water absorption by said granules of substrate and condensation of water in the air onto the inner surfaces of said enclosed vessel; and

(e) removing said heat of crystallization and associated heat from cooling the molten material and subsequently solid material by evaporation of said finely divided droplets of water to give an overall heat transfer rate which is represented in Btu/hr by either the numerator or denominator of the following equation which represents the thermodynamics of the instant process, i.e.

$$\frac{4\pi\bar{r}n(t_a - t_w)(k_f + k_c) + W_a\Delta H_a + W_r\Delta H_r}{h_g N_g A_g(t_g - t_a) + q_l} = 1$$

where π is the ratio of the circumference of a circle to its diameter and is 3.1416 and dimensionless; r is the average radius in ft. of an evaporating droplet over its life span and is a maximum of 6.56×10^{-5} ft; n is the number of water droplets present in atomized form in the vessel at a given instant and as such is dimensionless; t_a is the average dry bulb temperature of the air in °F.; t_w is the average wet bulb temperature of the air in °F.; t_g is the average temperature of granules in contact with the air in °F.; k_f is the thermal conductivity of the air in Btu-ft/(hr)(ft²)(°F.); k_c is the forced thermal convection of air in contact with water droplets in Btu-ft/(hr)(ft²) (°F.); W_a is the mass flow rate of air through the vessel less water evaporated in the vessel in lb/hr; ΔH_a is the difference in enthalpy of the air entering and leaving the vessel less water evaporated in the vessel in Btu/lb; W_r is the mass flow rate of water sprayed and evaporated in the vessel in lb/hr; ΔH_r is the average change in enthalpy of the water evaporated in the vessel after it is in the vapor phase in Btu/lb; h_g is the average heat transfer coefficient between granules and air in Btu/(ft²)(hr)(°F.); N_g is the number of granules exposed to the air at any one instant and is dimensionless; A_g is the average surface area of each one of those granules exposed to the air in square feet; and q_l is the rate of heat flow from granules to the air by indirect means in Btu/hr, and where the left hand term of the numerator fully describes the rate of heat transfer by evaporation of water in Btu/hr, and the middle and right hand terms of the numerator fully describe the heat absorbed by the air and the water vapor, respectively, in Btu/hr, and the denominator fully describes the rate of heat transfer from granules to air in Btu/hr;

the improvement in combination therewith for effecting improved heat transfer between the said granulated material in said enclosed vessel and the air introduced therein, which comprises the additional steps of:

(1) alternately causing at least a portion of said movement of granules of substrate in said enclosed vessel to be vertically displaced from and returned from a first zone therein, the angle of the fall line of said granules of substrate in the descending attitude of said vertical displacement for return to said first zone ranging from about 90 degrees to the horizontal to about 5 degrees greater than the angle of repose of said granules of substrate;

(2) causing at least a portion of said air in said enclosed vessel to be moved in a generally horizontal attitude in a manner so as to intersect said granules of substrate in said descending attitude of said vertical displacement for return of same to said first zone, said horizontal movement of said air being sufficient to at least partially penetrate at least a portion of that segment of said enclosed vessel occupied by said returning granules of substrate;

(3) causing at least a portion of said air in said enclosed vessel having intersected and at least partially penetrated said segment of said granules of said substrate therein to be displaced to a second zone in said enclosed vessel, said second zone being at least horizontally displaced away from said granules of substrate;

(4) adjusting the enthalpy of the air displaced into said second zone to predetermined levels to maintain a predetermined temperature differential between said granules of substrate in said enclosed vessel and said air displaced into said second zone; and

(5) removing at least a portion of air displaced into said second zone after the enthalpy thereof has been adjusted and returning same into contact with at least a portion of that segment of said enclosed vessel occupied by said returning granular substrate to effect heat transfer therewith by means of at least partial penetration thereof in step 2 above in a manner such that the contact angle between said air and the plane of the fall line of said granular substrate ranges from between about −45 degrees to about +45 degrees from the direction perpendicular to the plane of said fall line;

said process characterized by the fact that the thermodynamic characteristics thereof as they relate to the heat transfer between said aid and said granular substrate are represented as follows:

$$q_t = Ua\ V(\Delta t)_m$$

where

q_t = total heat transferred in the enclosed vessel, Btu/hr

Ua = volumetric heat transfer coefficient Btu/(hr)(ft³ enclosed vessel)(°F.)

V = volume of the enclosed vessel, ft³

$(\Delta t)_m$ = true mean temperature difference between the air and the granular substrate, °F.

4,424,177

MOLDING PREPUFFED POLYSTYRENE FOR HIGHER DENSITY SKIN

Richard H. Immel, West Chester, Pa., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Oct. 16, 1981, Ser. No. 311,835

Int. Cl.³ B29D 27/00; B05D 1/06

U.S. Cl. 264—24 **4 Claims**

1. The method of preparing an article having a relatively low density core and having a skin of relatively higher density, which method includes the steps of:

preparing low density prepuffed particles;

preparing separately moderate density prepuffed particles, said moderate density prepuffed particles having a density which is within the range from 50% to 1150% greater than the density of the low density prepuffed particles;

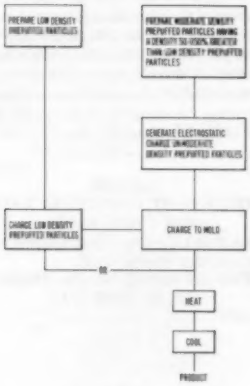
generating on the surface of the moderate density prepuffed particles a significant electrostatic charge, such charge being adequate to suspend at least a partial second layer of such electrostatically charged particles on the ceiling of a mold;

directing such electrostatically charged, moderate density prepuffed particles into the interior of a mold, whereby at least a layer of such moderate density prepuffed particles are formed on the mold walls;

directing into the mold lower density prepuffed particles having minimized electrostatic charge, said low density prepuffed particles filling the major volume of the mold by being less attracted to the mold walls than said electrostatically charged moderate density particles, said directing of the low density prepuffed particles being promptly

after and/or simultaneous with said directing of the moderate density prepuffed particles;

heating the thus filled mold to bond together the low density prepuffs throughout most of the volume of the mold and to bond together the skin of moderate density prepuffed particles and to bond together the core and skin;



cooling the thus molded article in the mold;

and removing the thus cooled article from the mold, said article having a skin of relatively higher density than the core.

4,424,178

PROCEDURE AND DEVICE FOR PRODUCTION OF A PREFORM OF THERMOPLASTIC SYNTHETIC MATERIAL BY MEANS OF EXTRUSION

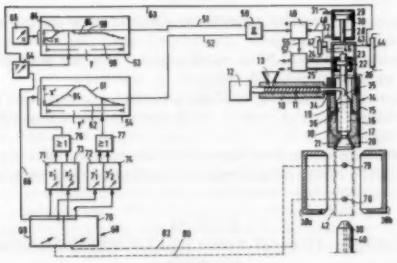
Werner Daubenbüchel, Bergisch-Gladbach; Dieter Hess, Swistal-Morenhoven, and Erich Kiefer, Bonn, all of Fed. Rep. of Germany, assignors to Krupp Kautex Machinenbau GmbH, Bonn, Fed. Rep. of Germany

Filed Jan. 21, 1982, Ser. No. 341,373

Claims priority, application Fed. Rep. of Germany, Jan. 23, 1981, 3102076

Int. Cl.³ B29D *23/04*

U.S. Cl. 264—40.1 **25 Claims**



1. Procedure for manufacturing a preform of thermoplastic synthetic material by means of extrusion from an extruding head provided with a slot-shaped exit opening, the width of which is changed during the extrusion of the preform in order to adjust the wall thickness of the same according to a predetermined program, characterized thereby that the wall thickness of at least one partial area of the preform is controlled by means of at least one additional program, which is superposed upon the first program, which is longer than the additional program.

5. Device for manufacturing of a preform of thermoplastic synthetic material by means of extrusion from an extruder head provided with a slot-shaped exit opening, the width of which is adjustable during the extrusion of the preform in order to adjust the wall thickness thereof by means of a device provided with a specific program for the distribution of the wall thickness of the preform, characterized thereby that at least one second device **(54)** provided with a program for influencing the wall thickness of the preform **(42)** has been included in the design and that this program is shorter in respect to its duration in time or the extent of its influence on the preform **(42)** than the program of the first programmed device **(53)** and is in effect only in at least one partial area of the program of the first device **(62)**.

4,424,179

METHOD OF MANUFACTURING A SINTERED SILICON CARBIDE CERAMIC PART

Louis Minjolle, Tarbes; Bernard Lengronne, Monsegur; Joseph Calvet, Tarbes, and Serge Chateigner, Rabastens de Bigorre, all of France, assignors to Societe Anonyme dite: Ceraver, Paris, France

Filed May 10, 1982, Ser. No. 376,630

Claims priority, application France, May 18, 1981, 81 09822

Int. Cl.³ C04B *35/64*

U.S. Cl. 264—44 **9 Claims**

1. A method of manufacturing a sintered silicon carbide part, the method comprising the following steps:

(a) mixing a silicon carbide powder, at least one sintering additive, and an injection moulding agent; said sintering additive being chosen from the group consisting of boron, boron compounds, beryllium, beryllium compounds, aluminium and aluminium compounds; and said injection moulding agent comprising a mixture of polystyrene and a wax having a lower volatilisation temperature than the volatilisation temperature of the polystyrene, said polystyrene being provided in a quantity sufficient to be carbonized during sintering to produce 0.5% to 5% by weight of carbon relative to the weight of the silicon carbide;

(b) forming a shaped part by injection moulding said mixture;

(c) baking the moulded part in an oxidizing atmosphere to a temperature of 230° C. to 330° C. and then maintaining the part at said temperature for long enough to eliminate the wax and to reticulate and to oxidize at least a portion of the polystyrene;

(d) heat treating the baked part in an inert atmosphere or in a vacuum by heating up to a final temperature of about 900° C., the temperature rising at a rate of between 50° C. per hour and 100° C. per hour such that the loss of weight of the part is stabilized when it reaches the final temperature; and

(e) sintering the heat treated moulded part at a temperature of 1900° C. to 2200° C. in an inert atmosphere or under a vacuum.

4,424,180

PROCESS FOR THE PRODUCTION OF EXPANDED SYNTHETIC MATERIAL ARTICLES HAVING VARIABLE PHYSICAL CHARACTERISTICS

Guy Lalloz, Froideconche, and Gabriel Joly, Luxeuil-les-Bains, both of France, assignors to Saplest S.A., Faucogney et la Mer, France

Filed Aug. 9, 1982, Ser. No. 406,408

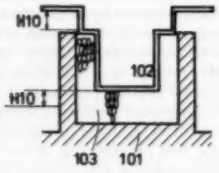
Claims priority, application France, Aug. 13, 1981, 81 15705

Int. Cl.³ B29D *27/00*

U.S. Cl. 264—51 **10 Claims**

1. A process for the production of an expanded synthetic material molding comprising:

(a) expanding the synthetic material in a precisely shaped cavity of a hot mold,
(b) modifying the mechanical properties of the molding during production by enlarging the size of the cavity,



expanding the material into the enlarged cavity until it occupies the enlarged cavity,
(c) then compressing at least a part of the molding of step (b) to attain the final shape, and
(d) stabilizing the final shape.

4,424,181

PROCESS AND COMPOSITION FOR PRODUCING OPEN-CELL CROSS LINKED POLYOLEFIN FOAM

Akitaka Senuma, and Takao Aizawa, both of Yokohama, Japan, assignors to Nippon Unicar Company, Tokyo, Japan

Filed Oct. 13, 1982, Ser. No. 433,869
Int. Cl.³ B29H *7/20*
U.S. Cl. 264—54 **1 Claim**

1. A process for producing open-cell cross linked polyolefin foam which comprises forming a composition comprising 100 parts by weight of olefin resin, 1 to 20 parts by weight of blowing agent, 0.3 to 10 parts by weight of organic peroxide crosslinking agent, 0.1 to 10 parts by weight of trifunctional monomer, and 1 to 5 parts by weight of silicone oil or a derivative thereof having a viscosity lower than 10 cSt at room temperature, said organic peroxide having a 10-minute half-value temperature (T_p) of 110° C. to 170° C. and said blowing agent having a decomposition temperature (T_f) of 100° C. to 160° C., T_p and T_f satisfying the following equation:

$$-10° C. \leqq T_p - T_f \leqq 50° C.$$

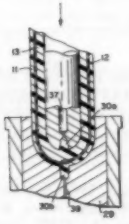
molding said composition into pellets, powder, film or sheets, and subsequently heating said moldings in a single step.

4,424,182

METHOD FOR SEALING A MULTILAYERED TUBE HAVING A BARRIER LAYER

Daryl D. Cerny, Greenville, Ohio, assignor to Ball Corporation, Muncie, Ind.

Filed Dec. 11, 1981, Ser. No. 329,625
Int. Cl.³ B29C *17/10*
U.S. Cl. 264—138 **14 Claims**



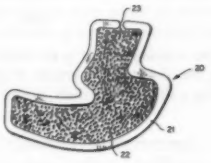
10. A method of closing off an open end of a multilayered tube having inner and outer thermoplastic layers with a barrier layer therebetween to assure the integrity of the latter layer, which comprises heating the open end of the tube to be closed off, inwardly deflecting the heated end of the tube while supporting on a mandrel its inner surface to thereby draw together said thermoplastic layers to unit the inner thermoplastic layer and to seal off the open end by forming a stem-like protrusion therefrom wherein the barrier layer assumes a deflected configuration, severing a portion near the end of said protrusion whereby a portion of the protrusion is severed and the configuration of barrier layer is drawn still closer together, and forging the severed protrusion of the tube while allowing a predetermined quantity of thermoplastic material to be displaced whereby the barrier layer is brought into substantial alignment thereby maintaining the integrity of the barrier layer over the closed-off end of the multilayered tube.

4,424,183

DESTRUCTIBLE CORE STRUCTURE AND METHOD FOR USING SAME

Mark A. Nelson, Salt Lake City, Utah, assignor to Baker International Corporation, Orange, Calif.

Filed Jul. 6, 1982, Ser. No. 395,094
Int. Cl.³ B28B *7/34*
U.S. Cl. 264—221 **7 Claims**



1. A method for producing a cast resinous part with a complex internal cavity, comprising:
forming a destructible core structure from a rigid shell configurated as said complex cavity and filled with an inert flowable ballast material;
positioning said core structure in the appropriate position within the cavity of a casting mold adapted to produce said cast part, thereby providing a casting space the configuration of said part;
introducing casting resin into said casting space, thereby to envelope said core structure, leaving at least one access opening through said cavity space in contact with said core;
curing the resin to solidify the resinous mass around said core structure;
removing the solidified resinous mass from the mold with the core structure in place;
rupturing the shell of said core structure, and removing the ballast material from the shell through said access opening; and
removing the shell of the core structure from the internal cavity of the resinous mass through said access opening.

4,424,184

ACCELERATION OF YARN HEAT-STRENGTHENING PROCESS

Clifford H. Eskridge, Newark, and Robert R. Luise, Wilmington, both of Del., assignors to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Filed Oct. 12, 1982, Ser. No. 433,785
Int. Cl.³ B29C *25/00*
U.S. Cl. 264—235 **3 Claims**

1. In a process for heat-strengthening yarn spun from optically anisotropic melt-forming polyesters wherein the yarn is heated at temperatures above 250° C. for a period sufficient to

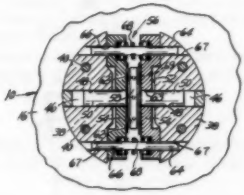
increase tenacity by at least 50%, the improvement comprising accelerating the heat-strengthening process by coating said yarn prior to such heat-treatment with a small amount of an inorganic compound selected from the group of potassium bromide, potassium hydroxide, potassium iodide, potassium chloride, sodium chloride, sodium bromide, sodium iodide, rubidium chloride and cesium chloride.

4,424,185

PART PICK-UP MECHANISM FOR POWDER COMPACTING PRESSES AND THE LIKE

Raymond P. DeSantis, Troy, and Herbert J. Puffer, Jr., Garden City, both of Mich., assignors to PTX-Pentronix, Inc., Lincoln Park, Mich.

Filed Mar. 17, 1981, Ser. No. 244,605
Int. Cl.³ B29C *7/00, 3/00*
U.S. Cl. 264—334 **12 Claims**



1. A pick-up head for transferring articles from an ejection station to a discharge station, said pick-up head comprising a pair of aligned cylinder bores, a pair of piston members slidably disposed in said bores and reciprocable therein, a pair of jaw members each one connected to one of said piston members for reciprocation therewith, means for simultaneously introducing a pressurized fluid behind each of said piston members for displacing said jaw members towards each other for grasping therebetween an article ejected at said ejection station, means for exhausting said pressurized fluid from behind said piston members after transfer of said article to said discharge station by said pick-up head, and biasing means urging said jaw members away from each other upon actuation of said means for exhausting said pressurized fluid from behind said piston members for releasing said article from between said jaw members at said discharge station.

4,424,186

POWER GENERATION

Bruce M. Cook, Plum Borough, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

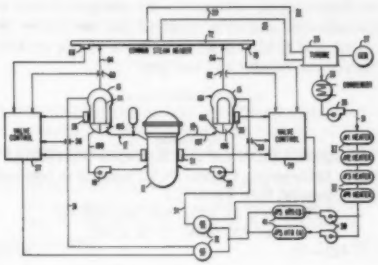
Filed Mar. 2, 1981, Ser. No. 239,710
Int. Cl.³ G21D *3/08*
U.S. Cl. 376—211 **11 Claims**

1. Apparatus for generating power including a nuclear reactor, a turbine to be energized from said reactor, a steam generator, connected to said reactor, for deriving energy therefrom, fluid circulating means, connected to said steam generator and said turbine, said fluid circulating means including a first branch for supplying steam from said steam generator to said turbine to energize said turbine and a second branch for supplying feedwater from said turbine to said steam generator, said feedwater supplied to said steam generator to be converted into steam in said steam generator by the energy supplied to said steam generator by said reactor, valve means in said second branch for controlling the flow of said feedwater to said steam generator, and means, responsive to the magnitude of the boiling power produced by said reactor in said steam generator and to the level of the water in said steam generator, for controlling said valve means in accordance with the demand thereon, and wherein the boiling power, herein BP, is given by the equation:

$$BP = K_1 \cdot Q_N - a \cdot (h_s - h_{fw}) \cdot W_{fw}$$

wherein

K_1 = a gain dependent on the requirement of the apparatus



Q_N = nuclear power

a = constant dependent on apparatus

h_s = enthalphy of saturated water

h_{fw} = enthalphy of feedwater injected into the steam generator

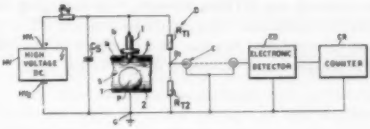
W_{fw} = rate of flow of feedwater.

4,424,187

APPARATUS FOR THE MONITORING OF THE PASSSAGE OF CONDUCTIVE OBJECTS THROUGH A TUBE

Heinz Thyssen, Jülich, and Günter Breuer, Düren, both of Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich GmbH, Jülich, Fed. Rep. of Germany

Continuation of Ser. No. 894,032, Apr. 6, 1978, abandoned. This application Nov. 6, 1980, Ser. No. 204,531
Claims priority, application Fed. Rep. of Germany, Apr. 12, 1977, 2716109
Int. Cl.³ G21C *17/00*
U.S. Cl. 376—245 **10 Claims**



1. A system for monitoring the passage of individual conductive objects for the core of a nuclear reactor along a path, said system comprising:

a measuring stretch including an electrode disposed along said path and juxtaposed with a conductive tube wall so that said electrode and said conductive tube wall constitute members defining a normally nonconductive gas-filled gap subject to electrical breakdown and traversed by said object;

a high-voltage direct-current generator capable of generating voltages of the order of 15 kilovolts connected across said members and said gap whereby a voltage field is established across said gap sufficient to develop a separate discharge in the presence of said object;

a high-ohmic resistor with a resistance value of megaohms connected in series with said electrode and said high-voltage direct-current generator;

a voltage divider connected across said members and includ-

ing a low-ohmic resistor connected to said wall and adapted to develop a varying high-frequency oscillation signal of a signal voltage of the order of up to 100 volts upon the passage of an object through said gap; and

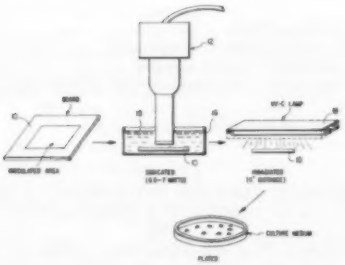
circuit means responsive to said signal voltage and including an amplitude demodulator connected across said low-ohmic resistor and generating a signal corresponding substantially to the envelope curve of a high-frequency oscillation signal induced by the passage of each object through said gap as a result of the interaction of said object, said field, a stray capacitance of said stretch, said high-ohmic resistor and said gap.

4,424,188

STERILIZATION OF PACKAGING MATERIAL

Michael J. DiGeronimo, Chester, N.Y., assignor to International Paper Company, New York, N.Y.

Filed Dec. 31, 1981, Ser. No. 336,212
Int. Cl.³ A61L *2/10, 2/08*
U.S. Cl. 422—20 **56 Claims**



1. A chemical biocide-free method for sterilizing packaging material, the packaging material being employed subsequent to its sterilization for the aseptic packaging of foodstuffs, the method including the steps of (1) first subjecting the packaging material to ultrasonic vibrations through a liquid medium, said liquid medium being substantially free of chemical biocidally active material, and (2) then subjecting the packaging material to ultraviolet radiation, whereby the bactericidal effect of steps (1) and (2) combined together as a sequence in the order recited is greater than if practiced in the reverse order.

4,424,189

PROCESS FOR STERILIZING TUB-SHAPED CONTAINERS

Werner Hick, Hiddenhausen, Fed. Rep. of Germany, assignor to Hick & Co. GmbH, Hiddenhausen, Fed. Rep. of Germany

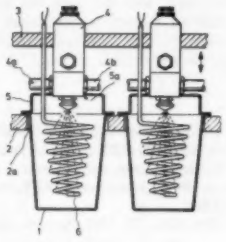
Filed Jun. 23, 1982, Ser. No. 391,246
Int. Cl.³ A61L *2/06, 2/18, 2/20, 2/22*
U.S. Cl. 422—27 **8 Claims**

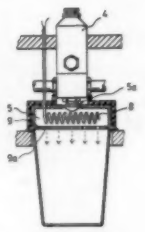
1. An improved technique for the sterilization of the internal surfaces of an open-topped container comprising the steps of:

atomizing, in the vicinity of a container to be sterilized, a sterilizing agent capable of the formation of free oxygen upon thermal decomposition;

directing the atomized sterilzing agent against a high temperature surface located in the immediate vicinity of said container to cause substantially instantaneous thermal decomposition thereof whereby free oxygen is formed; and

permitting the vapor resulting from the thermal decomposition of the sterilizing agent to condense on the internal surfaces of the container and to subsequently evaporate therefrom, whereby the combined effects of the free oxy-





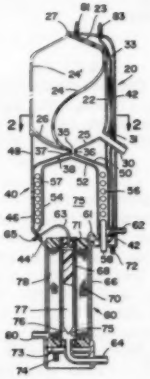
gen and condensed sterilizing agent vapor causes sterilization of said internal surfaces.

4,424,190

RIGID SHELL EXPANSIBLE BLOOD RESERVOIR, HEATER AND HOLLOW FIBER MEMBRANE OXYGENATOR ASSEMBLY

Frank W. Mather, III, Pleasant Hill; Andreas Preussner, Berkeley, both of Calif., and Gaylord L. Berry, Salt Lake City, Utah, assignors to Cordis Dow Corp., Miami, Fla.

Filed Feb. 22, 1982, Ser. No. 350,664
Int. Cl.³ A61M *1/03*
U.S. Cl. 422—46 **14 Claims**



1. A blood reservoir comprising

(1) a self-supporting member having a rigid shell portion defining a concavity opening inwardly into a reservoir chamber and defining a rigid inner wall thereof;

(2) flexible membrane means secured by a liquid-tight seal to

said shell portion around the periphery of said concavity in overlying relationship to said concavity and forming, with said inner wall, said reservoir chamber, whereby said reservoir chamber comprises a variable volume liquid tight chamber;

(3) said flexible membrane means interfitting with said overlying the inner wall of said concavity when said chamber is empty amd movable to variable positions outwardly from said inner wall as liquid enters said chamber between said inner wall and membrane means, and

(4) blood inlet and outlet means integral with said rigid shell portion of said concavity and communicating with said chamber.

11. A blood reservoir as claimed in claim **1** and arranged with a heat exchanger and a blood oxygenator to provide a blood oxygenator assembly,

said heat exchanger being secured to the lower end of said reservoir, said outlet means being adjacent to the lower end of said chamber and comprising blood inlet means for said heat exchanger adjacent to the upper end of the latter, blood outlet means for discharging heated blood from said heat exchanger,

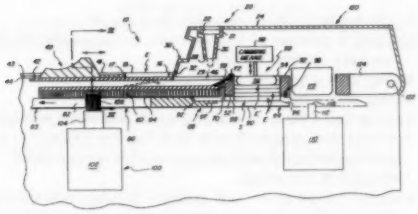
said blood oxygenator being secured to the lower end of said heat exchanger and having blood inlet and outlet means.

4,424,191

ANALYZER FEATURING LOADING AND UNLOADING MEANS FOR A STORAGE CHAMBER, AND COMMON DRIVE MEANS

Raymond F. Jakubowicz, Rush, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 4, 1982, Ser. No. 354,859
Int. Cl.³ G01N *35/04*
U.S. Cl. 422—65 **10 Claims**



1. In an analyzer for the chemical analysis of a liquid contained in a test element, the analyzer comprising

metering station means at which liquid is deposited onto such a test element;

storage station means comprising a storage chamber constructed to store more than one such test element, said chamber having one end disposed for loading such elements and an opposite end disposed for unloading said stored elements from said chamber;

detection station means for detecting a change in said unloaded test elements; and

means for sequentially moving each of such test elements into said metering station means, from said metering station means into said chamber, and from said chamber into said detection station means;

the improvement wherein said moving means include:

(a) a first member movable along a first path between: (1) an idle position upstream of said metering station means, (2) an element-engaging position at said metering station means, and (3) an element loading position at said one end of said storage chamber;

(b) a second member movable along a second path spaced from said first path, between: (1) an idle position upstream of said storage chamber, (2) an element-engaging position at said opposite end of said storage chamber, and (3) an element loading position at said detection station means;

and reversible drive means coupled to said first member and said second member for sequentially moving said first member to its (1), (2) and (3) positions while synchronously moving said second member respectively to its (3), (2) and (1) positions, and vice versa;

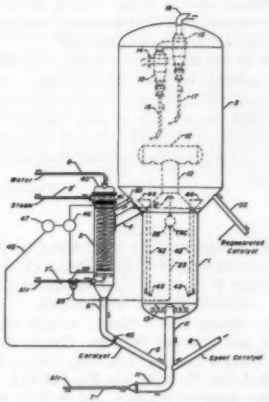
whereby said drive means is effective to operate both said movable members without disengagements and without simultaneous loading and unloading of said storage chamber.

4,424,192

FLUID CATALYST REGENERATION APPARATUS

David A. Lomas, Arlington Heights, and Gregory J. Thompson, Waukegan, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Division of Ser. No. 273,296, Jun. 15, 1981, Pat. No. 4,353,812.
This application Jun. 18, 1982, Ser. No. 389,790
Int. Cl.³ B01J *21/20, 29/38, 8/26;* **C10G** *11/18*
U.S. Cl. 422—109 **4 Claims**



1. An apparatus for regenerating a coke-contaminated, fluid catalyst which comprises in combination;

(a) a vertically oriented combustion chamber having an upper and bottom section;

(b) an inlet line for passage of regeneration gas connecting with the lower portion of said combustion chamber;

(c) an inlet line for coke-contaminated, spent fluid catalyst connecting with the lower portion of said combustion chamber;

(d) a disengagement chamber located superadjacent to and above said combustion chamber and in communication therewith;

(e) a catalyst collection section at the bottom of said disengagement chamber;

(f) a shell and tube type heat exchanger of vertical orientation, remote from said combustion and disengagement chambers, having a catalyst inlet at the upper portion of the shell side of said heat exchanger and a catalyst outlet at a bottom portion of the shell side of said heat exchanger;

(g) a hot catalyst conduit connecting said catalyst collection section of said disengagement chamber with the catalyst inlet in the upper portion of said shell side of said heat exchanger such that hot regenerated catalyst flows from said catalyst collection section of said disengagement chamber to said shell and tube type heat exchanger;

(h) a cooled catalyst conduit connecting said catalyst outlet of said shell side of said heat exchanger with a lower portion of said combustion chamber, such that cooled

catalyst flows from said shell side of said heat exchanger to said lower portion of said combustion chamber;

(i) inlet and outlet conduits connected to the tube side of said heat exchanger, such that cooling fluid flows through said tubes and indirectly cools said hot regenerated catalyst passing from said hot catalyst conduit to said cooled catalyst conduit through said shell side of said heat exchanger;

(j) a fluidizing gas inlet conduit connected to a bottom portion of said shell side of said heat exchanger, such that fluidizing gas flows into said shell side to maintain said catalyst in a fluidized catalyst bed therein; and,

(k) a flow control valve placed in said fluidizing gas inlet conduit of step (j) to control the flow of fluidizing gas thereto responsive to a control system comprising:

(i) means to sense the temperature at a locus within said upper section of said combustion chamber, said upper section containing a relatively dilute-phase of fluidizing catalyst, which has been passed upward enroute to said disengagement chamber from a relatively dense-phase of fluidizing catalyst maintained in said bottom section of said combustion chamber;

(ii) temperature control means having an adjustable set point connected to said temperature sensing means and developing a first output signal; and

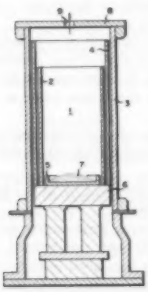
(iii) means for transmitting said output signal to said flow control valve of step (k) placed within said fluidizing gas inlet conduit of step (j) to adjust said valve responsive to said temperature at said locus in said upper section of said combustion zone and to thereby regulate the flow of fluidizing gas into said shell side of said heat exchanger.

4,424,193

CONSTITUENT MEMBERS OF A SEMICONDUCTOR ELEMENT-MANUFACTURING APPARATUS AND A REACTION FURNACE FOR MAKING SAID CONSTITUENT MEMBERS

Masao Koyama, Oguni; Syuitu Matuo, Atsugi; Chiaki Nakayama, Ebina, and Katsumi Hoshina, Oguni, all of Japan, assignors to Toshiba Ceramics Co., Ltd., Tokyo, Japan

Filed Jun. 25, 1980, Ser. No. 162,943
Claims priority, application Japan, Jul. 9, 1979, 54-86708
Int. Cl.³ C30B *25/10*
U.S. Cl. 422—248 **7 Claims**



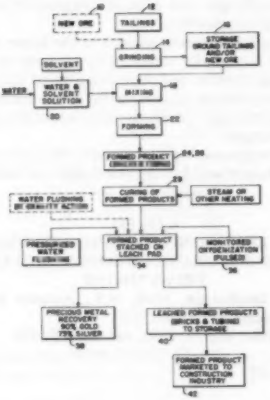
1. A constituent member of a semiconductor element-manufacturing apparatus, which comprises a carbon substrate of a thermal expansion coefficient of 2.5 to 5.5×10^{-6}/°C. having directly upon its surface a silicon carbide layer, which layer is vapor-deposited from a gaseous phase mainly comprising silicon monoxide, said silicon monoxide having been evolved by a reaction between silica powder and carbon under a reduced pressure at a temperature of 1500° to 1900°, said silicon carbide layer having a half value width of 0.35° or less as measured by Cu-K_α rays in X-ray diffraction analysis on the (200) plane of said silicon carbide layer.

4,424,194

PROCESS FOR EXTRACTION OF METALS FROM LEACHABLE ORES AND FORMING OF BUILDING MATERIALS

Robert M. Hughes, 10039 Bristol, Alta Loma, Calif. 91701

Filed Jan. 4, 1982, Ser. No. 336,693
Int. Cl.³ C01G *1/00, 5/00, 7/00*; E04B *5/04*
U.S. Cl. 423—1 **11 Claims**



1. The method which comprises the steps of:

crushing a quantity of leachable ore into a powder of substantially uniform particle size;

mixing with a quantity of a binding material;

mixing with a leaching material;

forming into a masonry building construction article having at least one passage therein such that the quantity of the binding material is sufficient to impart adequate structural strength to the article;

stacking a plurality of said masonry building construction articles with at least some of said passages disposed therein in generally parallel flow paths;

passing a solvent through the passages of the masonry building construction articles to extract and recover metal values from the ore and thereafter recovering the by-product formed construction articles.

4,424,195

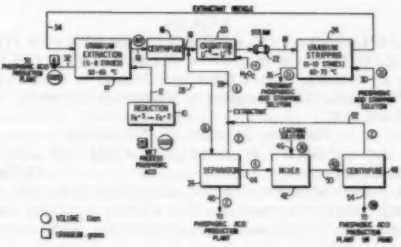
RECOVERY OF ORGANIC EXTRACTANT FROM SECONDARY EMULSIONS FORMED IN THE EXTRACTION OF URANIUM FROM WET-PROCESS PHOSPHORIC ACID

Joseph D. Korchnak, and Richard H. G. Fett, both of Lakeland, Fla., assignors to UNC Reovery Corporation, Mulberry, Fla.

Filed May 14, 1980, Ser. No. 14^A,690
Int. Cl.³ C01B *25/234*
U.S. Cl. 423—10 **13 Claims**

1. In a process for recovering uranium from wet-process phosphoric acid including extracting the uranium from the wet-process acid with an organic extractant, treating the extractant to remove secondary emulsions containing extractant formed during extraction, and stripping the uranium from the extractant into a stripping solution, the improvement comprising:

(1) mixing the secondary emulsions with water or an acid leaching solution; and



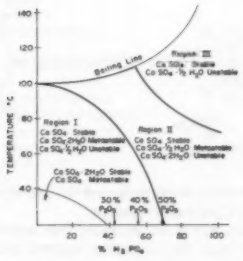
(2) separating the extractant from the mixture obtained in step (1) whereby the extractant is separated from the secondary emulsions.

4,424,196

PHOSPHOHEMIHYDRATE PROCESS FOR PURIFICATION OF GYPSUM

Jay W. Palmer, Lutz, Fla., and John C. Gaynor, Des Plaines, Ill., assignors to United States Gypsum Company, Chicago, Ill.

Filed Jun. 29, 1982, Ser. No. 393,232
The portion of the term of this patent subsequent to Jun. 14, 2000, has been disclaimed.
Int. Cl.³ C01F *11/46, 13/00*; C01B *25/16*; G21F *9/28*
U.S. Cl. 423—166 **20 Claims**



STABILITY DIAGRAM - $CaSO_4$ IN $CaSO_4$-H_3PO_4-H_2O SYSTEM

1. A process for reducing radioactivity in calcium sulfate containing radioactive contamination comprising the steps of:

forming an acidic aqueous slurry of fine sized phosphohemihydrate containing radioactive contamination and a substantial weight proportion of coarser particles of gypsum that are substantially free of radioactivity;

hydrating, at a temperature and P_2O_5 concentration of phosphoric acid with Region I of FIG. 1, at least a substantial proportion, but less than all, of the hemihydrate to coarser gypsum substantially free of radioactivity; and

separating a coarse gypsum product low in radioactivity from the finer sized hemihydrate containing radioactive contamination.

9. The process of claim 1 wherein a coarse gypsum product containing less than 1 pCi/g of radium-226 is separated.

4,424,197

GAS DESULFURIZATION

Byron E. Powell, Rollings Meadows; Virendar S. Bakhshi, Chicago, and Donald A. Randolph, Wheaton, all of Ill., assignors to United States Gypsum Company, Chicago, Ill.

Filed Sep. 29, 1982, Ser. No. 426,445
Int. Cl.³ B01J *8/00*; C01B *17/00*
U.S. Cl. 423—244 **8 Claims**

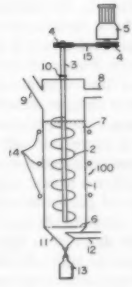
1. A process for decontaminating a SO_2 containing gas wherein such gas also containing oxygen is contacted at a temperature between about 500° C. and 1000° C. with calcium oxide particles; such particles being in a highly voided skeletal structure containing numerous macro pores in the walls of large pores such that the pores of the particles have a total pore volume to weight ratio of at least about 0.4 cubic centimeters per gram and total pore surface area to weight ratio of at least about 0.5 square meters per gram measured by mercury porosimetry; and reacting SO_2 throughout the calcium oxide particle to form a calcium sulfate reaction product.

4,424,198

PROCESS FOR PREPARING TRICHLOROSILANE AND SILICON TETRACHLORIDE FROM SILICON AND HYDROGEN CHLORIDE

Tadao Ito, and Hidetaka Hori, both of Yokkaichi, Japan, assignors to Nippon Aerosil Co., Ltd., Tokyo, Japan

Filed Aug. 3, 1982, Ser. No. 404,751
Claims priority, application Japan, Aug. 17, 1981, 56-127834
Int. Cl.³ C01B *33/08*; B01F *7/08*
U.S. Cl. 423—342 **10 Claims**



1. In a process for producing trichlorosilane and silicon tetrachloride by reacting metallic silicon or metallic-silicon-containing materials and hydrogen chloride, the improvement comprising:

providing, as the reactive silicon-containing starting material, metallic silicon or metallic-silicon-containing materials in the lump from ranging downward in particle size to silicon powder;

upwardly conveying said silicon-containing starting material in an upright cylindrical reactor provided with a screw conveyor, the diameter of which is at least one-half of the inside diameter of the reactor with the space between the screw periphery and the inside wall of the reactor being about 3–6 times the diameter of the largest lumps of metallic silicon or metallic-silicon-containing materials being conveyed through the reactor;

introducing hydrogen chloride into the reactor; and

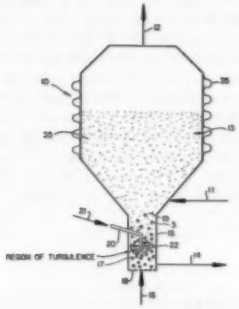
rotating said screw conveyor so as to transport the silicon lumps and powder upward in the reactor, the rate of rotation of said conveyor being controlled such that the rate of rotation is increased as heat generation increases and is decreased as the rate of heat generation decreases.

4,424,199

FLUID JET SEED PARTICLE GENERATOR FOR SILANE PYROLYSIS REACTOR

Sridhar K. Iya, Williamsville, N.Y., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Dec. 11, 1981, Ser. No. 329,956
Int. Cl.³ C01B 33/02; B05D 7/00; B02C 19/06
U.S. Cl. 423—349 7 Claims



1. In a process for the production of high purity, polycrystalline silicon in a fluidized bed reaction zone by introducing a gas flow of silane or silane-hydrogen mixture into a fluidized bed of fine sized silicon particles suspended in a reaction zone by an upward flow of fluidizing gas, said reaction zone temperature being maintained within the decomposition temperature range of said silane and below the melting point temperature of silicon whereby said silane is decomposed to form silicon which deposits on the silicon particles in the fluidized bed to enlarge the same and cause said enlarged particles to descend as silicon product particles from said fluidized bed reaction zone through said upward flow of fluidizing gas into a collecting chamber having interior surfaces including side walls and a base portion having passages through which an upward flow of gas is introduced which passes into said fluidized bed reaction zone, the improvement which comprises providing in said collecting chamber, in addition to said upward flow of gas, a separate high velocity jet of gas above said base portion at a velocity which is in the range of about 100 to 1200 feet per second and which is from about 50 to 5000 times the velocity of said upward flow of gas said high velocity jet causing turbulence only in a portion of said collecting chamber so as to cause a portion of the enlarged silicon product particles in said chamber to impinge upon each other and be thereby comminuted to form smaller silicon particles which are transported upwardly into said fluidized bed in said reaction zone by said upward flow of gas passing through said perforated base.

4,424,200

METHOD FOR RADIOLABELING PROTEINS WITH TECHNETIUM-99M

David R. Crockford, Haverhill, Mass., and Buck A. Rhodes, Albuquerque, N. Mex., assignors to Nuc Med Inc., Albuquerque, N. Mex. and University Patents Inc., Norwalk, Conn.

Continuation-in-part of Ser. No. 37,992, May 14, 1979, Pat. No. 4,323,546, which is a continuation-in-part of Ser. No. 908,568, May 22, 1978, abandoned. This application Mar. 23, 1981, Ser. No. 246,197
Int. Cl.³ A61K 43/00, 49/00
U.S. Cl. 424—1.1 17 Claims

1. The process for forming a reducing composition suitable for being radiolabeled with technetium-99m which comprises incubating a source of stannous ion with a protein in the presence of a buffering composition comprising a mixture of an alkali metal biphthalate and an alkali metal tartrate having a pH between about 4.5 and 8.5 for at least about 15 hours at a temperature wherein said protein is not denatured.

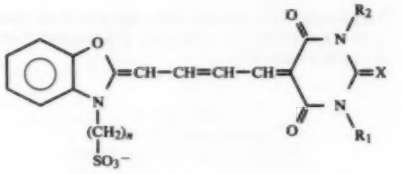
4,424,201

EMPLOYMENT OF A MEREYANINE DYE FOR THE DETECTION OF MALIGNANT LEUKOCYTIC CELLS

Jay E. Valinsky; Edward Reich, and Thomas G. Easton, all of New York, N.Y., assignors to Rockefeller University, New York, N.Y.

Filed Nov. 28, 1978, Ser. No. 964,359
Int. Cl.³ G01N 1/30, 21/64, 23/00; C12Q 1/04, 1/16
U.S. Cl. 424—3 19 Claims

1. A method for the detection of malignant leukocytic cells which comprises contacting a fluid solution containing malignant leukocytic cells with a merocyanine dye of the formula

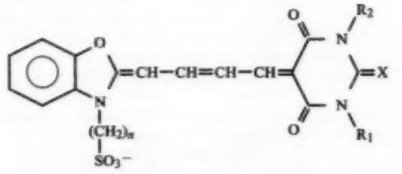


wherein n=1-5; X=O or S and R_1 and R_2 are the same or different C_2–C_5 alkyl groups;

wherein said dye is incorporated into said cells; separating the cells from the incubation mixture and then detecting said dyed cells.

12. The method of claim 1 wherein said merocyanine dye is radioactive.

19. A method of detecting solid tumors which comprises contacting a fluid solution containing leukocytic cells derived from the blood of patients having, suspected of having or having had a solid malignant tumor, with a merocyanine dye of the formula



wherein n=1-5; X=O or S, and R_1 and R_2 are the same or different C_2–C_5 alkyl groups;

wherein said dye is incorporated into said cells; separating the cells from the incubation mixture and detecting said dyed cells.

4,424,202

AZELAALDEHYDATES AS PSYCHOTROPIC AGENTS

Herman P. Benecke, Columbus, Ohio, assignor to The Vinoxen Company, Inc., Stamford, Conn.

Filed Jun. 11, 1982, Ser. No. 387,637
Int. Cl.³ A61U 27/00, 31/19, 31/22, 31/23, 31/40, 31/44, 31/165, 31/445
U.S. Cl. 424—10 20 Claims

1. A method for producing a psychotropic response in a human or animal subject suffering from a condition for which a psychotropic response would be therapeutic, comprising administering to said subject a psychotropically effective nontoxic amount of an azelaaldehydate having the formula $[CHO(CH_2)_7COO]_nR_1$, wherein n=1 and R_1 is H, lower alkyl, cyclo(lower)alkyl, aryl(lower)alkyl, lower alkoxy(lower)alkyl, di(lower)alkylamino(lower)alkyl, cyclic amino(lower)al-

kyl or alkanoylamino(lower)alkyl; or n=2-6 and R_1 is a lower alkyl or cyclo(lower)alkyl polyol residue; or a pharmaceutically acceptable addition salt thereof.

4,424,203

GEL FOR DENTAL CARIES PREVENTION

Gennady N. Pakhomov, Leninsky prospekt 123/1, kv. 529, Moscow; Anita Y. Luste, ulitsa Lachplesha 27, kv. 22, Riga; Anatoly G. Kolesnik, ulitsa Shosseinaya 58, korpus 2, kv. 59, Moscow; Vasily N. Demishev, Leninsky prospekt 67, kv. 230, Moscow; Eva L. Pashinina, ulitsa Novolesnaya 7, korpus 2, kv. 20, Moscow; Maria V. Mordvinova, ulitsa Novye Cheremushki 24-a, korpus 1, kv. 9, Moscow; Lilia V. Morozova, ulitsa Krasnogo Mayaka 8, korpus 2, kv. 264, Moscow; Lidia M. Boginskaya, Odintsovo-2, Mozhaiskoe shosse 49, kv. 232, Moskovskaya oblast; Irina B. Voskresenskaya, prospekt Pravdy 5, kv. 128; Sara Z. Osadchuk, prospekt Traktorostroitelei 162, kv. 141, both of Kharkov, and Galina I. Kadnikova, ulitsa Ya. Rudzutaka 60, kv. 10, Riga, all of U.S.S.R.

Filed Mar. 4, 1983, Ser. No. 472,213

Int. Cl.³ A61K *7/18, 33/16, 35/32*

U.S. Cl. 424—52 **4 Claims**

1. A gel for dental caries prevention comprising a gelling agent, a humectant, a surface active substance, a flavouring agent, 1.7–11% by weight of an anticaries agent which is a mixture of sodium monofluorophosphate with a substance obtained from treating the bone tissue with a dilute mineral acid to completely remove the mineral components and water-soluble proteins contained in the bone tissue, isolation of the thus obtained solution, diluting it with water and stabilizing additives of citric acid or salts thereof, with subsequent neutralization of the solution and drying, and including the following parts and proportions by weight %:

calcium	2–6
sodium	19–23
potassium	0.04–0.18
anion of mineral acid (chloride)	6–10.6
anion of orthophosphoric acid	1.5–5.0
water-soluble proteins	1.0–5.0
magnesium	0.05–0.2
complex of microelements including fluorine, manganese, tin, zinc, iron	0.01–0.02
complex citrate compounds calculated for citric acid anion	the rest.

4,424,204

CREAMY OR MILKY SKIN COSMETIC COMPOSITIONS

Hiromi Minamino; Mitsuo Kondo; Yasuhisa Otani, all of Odawara; Akira Miyashita, Yokohama; Kenzo Okada, Tokyo, and Takashi Kuramoto, Onomichi, all of Japan, assignors to Kanebo Ltd. and Maruzen Kasei Co., Ltd., both of, Japan

Filed Mar. 9, 1981, Ser. No. 241,525

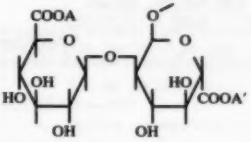
Claims priority, application Japan, Mar. 8, 1980, 55-29607; Oct. 2, 1980, 55-138511

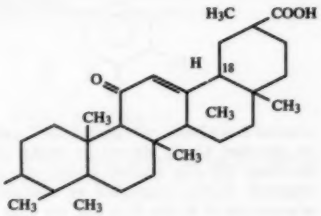
Int. Cl.³ A61K *7/021;* **B01J** *13/00;* **C07G** *3/00;* **C07H** *15/00*

U.S. Cl. 424—63 **22 Claims**

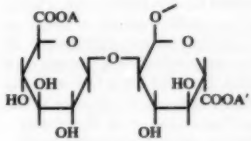
1. A creamy or milky oil-in-water emulsion skin cosmetic composition consisting essentially of

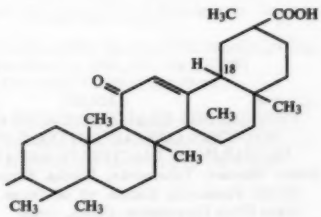
(a) an emulsifying agent selected from the group consisting of from 0.01 to 20% by weight based on the total weight of the skin cosmetic composition of at least one 18α-glycyrrhizin of the structural formula





in which A and A′ independently represent hydrogen atoms, sodium atoms, potassium atoms or ammonium groups, and from 0.01 to 20% by weight based on the total weight of the skin cosmetic composition of a glycyrrhizin composition consisting essentially of from 30 to 98 mole % of said 18α-glycyrrhizin and from 2 to 70 mole % of an 18β-glycyrrhizin of the structural formula





in which A and A′ independently represent hydrogen atoms, sodium atoms, potassium atoms or ammonium groups;

(b) an oily substance selected from the group consisting of higher aliphatic hydrocarbons, vegetable fat, vegetable oil, animal fat, animal oil, wax, higher alcohol, higher fatty acid, straight chain ester oil and branched-chain ester oil in an amount of from 15 to 80% by weight based on the total weight of the skin cosmetic composition; and

(c) water in an amount of from 10 to 90% by weight based on the total weight of the skin cosmetic composition;

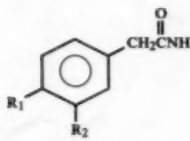
said skin cosmetic composition having a pH value in the range of from 2.0 to 6.0.

4,424,205
HYDROXYPHENYLACETAMIDES HAVING ANALGESIC AND ANTI-IRRITANT ACTIVITY

Thomas R. LaHann, Cleves, Ohio, and Brian L. Buckwalter, Yardley, Pa., assignors to The Procter & Gamble Company, Cincinnati, Ohio

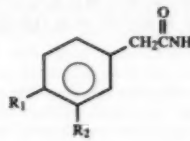
Filed Mar. 18, 1982, Ser. No. 359,464
Int. Cl.³ C07C *103/76;* A61K *7/155, 31/165*
U.S. Cl. 424—72 **23 Claims**

1. A compound, or pharmaceutically acceptable salt thereof, having the formula:



wherein R is a linear or branched C_8–C_{10} alkyl group, a linear or branched C_6–C_9 alkynyl or aralkyl group, a linear or branched C_{12}–C_{18} alkenyl group, or an unbranched or branched C_6–C_{11} cycloalkyl or cycloalkenyl group; and wherein one of R_1 and R_2 is OH, the other being OH or H.

10. A pharmaceutical composition in unit dosage form having analgesic activity, which comprises a safe and effective amount of a compound, or pharmaceutically acceptable salt thereof, having the formula:



wherein R is a linear or branched C_8–C_{10} alkyl group, a linear or branched C_6–C_9 alkynyl or aralkyl group, a linear or branched C_{12}–C_{18} alkenyl group, or an unbranched or branched C_6–C_{11} cycloalkyl or cycloalkenyl group; and wherein one of R_1 and R_2 is OH, the other being OH or H; and a pharmaceutically acceptable carrier.

4,424,206
PROCESS FOR HEAT TREATMENT OF AQUEOUS SOLUTION CONTAINING COLD INSOLUBLE GLOBULIN TO INACTIVATE HEPATITIS VIRUS

Takao Ohmura, Takarazuka; Yutaka Hirao, Toyonaka, and Satoshi Funakoshi, Katano, all of Japan, assignors to The Green Cross Corporation, Osaka, Japan

Filed Feb. 22, 1982, Ser. No. 351,299
Claims priority, application Japan, Feb. 25, 1981, 56-27448
Int. Cl.³ A61K *35/14, 37/00*
U.S. Cl. 424—101 **17 Claims**

1. A process for heat treatment to inactivate the hepatitis virus in a cold insoluble globuline, which comprises carrying out the heat treatment at 50° to 80° C. of an aqueous solution containing the cold insoluble globulin for a time sufficient to inactivate the hepatitis virus but to retain the activity of the cold insoluble globulin said aqueous solution also containing 10% W/V or more of at least one stabilizer selected from the group consisting of neutral amino acids, monosaccharides, disaccharides, and sugar alcohols.

4,424,207
ENZYME INHIBITORS

Michael Szelke, Ruislip; David M. Jones, Hayes, and Allan Hallett, Wembley, all of England, assignors to Ferring Pharmaceuticals Limited, Feltham, England

Filed Aug. 5, 1981, Ser. No. 290,620
Int. Cl.³ C07C *103/52;* A61K *37/02*
U.S. Cl. 424—177 **24 Claims**

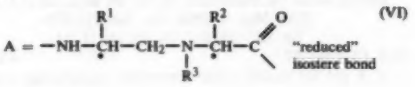
1. A polypeptide analogue of the formula:

$$\underset{6}{Z}-\underset{7}{Y}-\underset{8}{Pro}-Phe-\underset{9}{His}-\underset{10,11}{A}-\underset{12}{B}-\underset{13}{Z}-W \qquad (V)$$

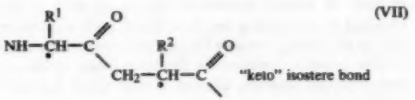
where: Pro, Phe and His may be in substituted form;

X = H, a lower aliphatic acyl (C_1=C_5), t-butyloxycarbonyl, an aromatic acyl or an L- or D- amino- acyl residue, which may itself be N-protected similarly;

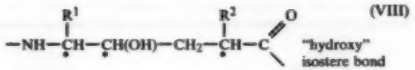
Y = D- or L-His or other D- or L- basic or aromatic aminoacyl residue, or is absent;



or



or



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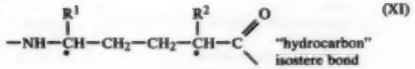


where the configuration at asymmetric centres • is either R or S, where in VIII the hydroxy group may be present as such or protected in either —OR^4 or ester

form where R^4 is as given under W below and where R^1 and R^2, the same or different = ^{i}Pro (isopropyl), ^{i}Bu (isobutyl), Bzl (benzyl) or other lipophilic or aromatic amino-acid side chain;

R^3 = —H; lower alkyl (C_1–C_5); or —SO_2Ph, —$SO_2C_6H_4CH_3$(p), Boc, formyl or other N-protecting group;

B = D- or L- Val or Ile or other D- or L- lipophilic aminoacyl residue;

Z = D- or L- Tyr, Phe, His or other L- or D-aromatic aminoacyl residue; and

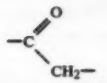
W =

(a) OH

(b) —OR^4 where R^4 = (i) lower alkyl C_1–C_5 (ii) cycloalkyl C_3–C_7 or Bzl

(c) $—NH_2$
(d) $—NHR^5$ or $—N(R^5)_2$ wherein R^5 is an N-protecting group or R^4
(e) L- or D-Lys
(f) L- or D-Arg unprotected or as the ester or amide
(g) L- or D-Ser and
(h) amino alcohol derived from (e)-(g) unprotected protected as such or in ester or ether form;
Z+W=alcohol derived from
(i) L-Tyr
(ii) L-Phe
(iii) D-Tyr or D-Phe
(iv) His

such polypeptide being in the above form or modified by isosteric replacement of one or more remaining peptide bonds by reduced, $—CH_2—NH—$, keto,



hydroxy, $—CH(OH)—CH_2—$, or hydrocarbon, $—CH_2—CH_2—$ isosteric links and further being in free form or in protected form at one or more remaining peptide, carboxyl, amino, hydroxy or other reactive groups.

4,424,208

COLLAGEN IMPLANT MATERIAL AND METHOD FOR AUGMENTING SOFT TISSUE

Donald G. Wallace, Menlo Park, and Susan B. Wade, Fremont, both of Calif., assignors to Collagen Corporation, Palo Alto, Calif.

Filed Jan. 11, 1982, Ser. No. 338,661
Int. Cl.³ C07C *103/52*; A61K *37/02*
U.S. Cl. 424—177 **7 Claims**

1. An injectable implant material for soft tissue augmentation comprising a dispersion of:
(a) particulate cross-linked atelopeptide collagen; and
(b) reconstituted fibrous atelopeptide collagen; dispersed in
(c) an aqueous carrier wherein the total collagen in the dispersion is in the range of about 15 to about 80 mg/ml, the cross-linked collagen constitutes about 70% to 95% by weight of the total collagen in the dispersion and the fibrous collagen constitutes about 5% to about 30% by weight of the total collagen in the dispersion.

4,424,209

3,4-DI-ISOBUTYRYLOXY-N-[3-(4-ISOBUTYRYLOXY-PHENYL)-1-METHYL-N-PROPYL]-BETA-PHENETHYLAMINE CYCLODEXTRIN COMPLEXES

Ronald R. Tuttle, Plantation, Fla., assignor to Key Pharmaceuticals, Inc., Miami, Fla.

Filed Jun. 21, 1982, Ser. No. 390,349
Int. Cl.³ A61K *31/73*; C08B *37/16*
U.S. Cl. 424—180 **4 Claims**

1. A complex of 3,4-diisobutyryloxy-N-[3-(4-isobutyryloxyphenyl)-1-methyl-n-propyl]-beta-phenethylamine which is complexed with at least one mol of cyclodextrin per mol 3,4-di-isobutyryloxy-N-[3-(4-isobutyryloxyphenyl)-1-methyl-n-propyl]-beta-phenethylamine.

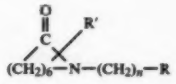
4,424,210

VEHICLE COMPOSITION CONTAINING 1-SUBSTITUTED AZACYCLOALKAN-2-ONES

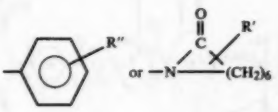
Vithal J. Rajadhyaksha, Mission Viejo, Calif., assignor to Nelson Research & Development Company, Irvine, Calif.

Division of Ser. No. 137,248, Apr. 4, 1980, Pat. No. 4,316,893, which is a division of Ser. No. 725,490, Oct. 28, 1976, abandoned, which is a continuation-in-part of Ser. No. 588,247, Jun. 19, 1975, Pat. No. 3,989,816. This application Dec. 7, 1981, Ser. No. 328,445
Int. Cl.³ A61K *31/30, 31/70, 31/71, 31/505*
U.S. Cl. 424—180 **16 Claims**

1. A composition comprising an effective amount of a physiologiclly active agent and a non-toxic, effective penetrating amount of compound having the structural formula



wherein R′ is H or a lower alkyl group having 1–4 carbon atoms, n is 0–17 and R is $—CH_3$,



wherein R″ is H or halogen.

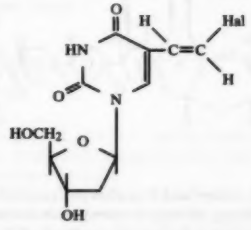
4,424,211

2′DEOXY-5-(2-HALOGENOVINYL)-URIDINES, PHARMACEUTICAL COMPOSITIONS AND METHOD OF USE

Albert S. Jones; Richard T. Walker, both of Birmingham, England; Erik D. A. de Clercq, Louvain, Belgium, and Philip J. Barr, Edmonton, Canada, assignors to Rega Instituut VZW, Louvain, Belgium and University of Birmingham, Birmingham, England

Continuation of Ser. No. 31,410, Apr. 19, 1979, abandoned. This application Dec. 21, 1981, Ser. No. 332,757
Int. Cl.³ A61K *31/70*; C07H *19/08*
U.S. Cl. 424—180 **9 Claims**

7. A method for treating herpes simplex infections comprising administering an effective antiviral amount of an E-5-(2-halogenovinyl)-2′-deoxyuridine compound of the formula:



wherein Hal represents a halogen atom selected from the group consisting of bromine and iodine.

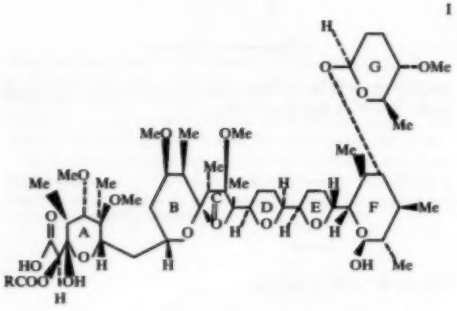
4,424,212

K-41.C(2) ESTERS

Naoki Tsuji, Ashiya, and Kazuo Nagashima, Neyagawa, both of Japan, assignors to Shionogi & Co., Ltd., Japan

Filed May 27, 1981, Ser. No. 267,517
Claims priority, application Japan, Jun. 13, 1980, 55-80794
Int. Cl.³ A61K *31/71, 35/00*
U.S. Cl. 424—181 13 Claims

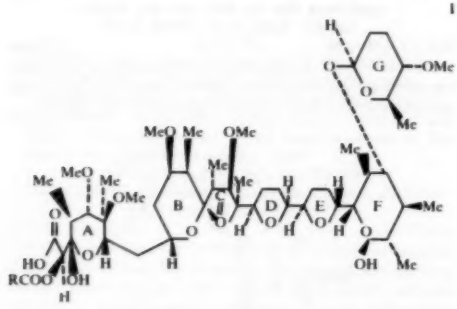
1. A method for protecting plants and animals from the attack of mites which comprises applying a miticidally effective amount of a K-41.C(2) ester of the formula:



I

wherein Me is methyl and R is phenyl-C_{1-4} alkyl, C_{1-4} alkoxy, phenyl-C_{1-4} alkoxy, phenyl, or phenyl substituted with 1 to 3 groups selected from the group consisting of C_{1-4} alkyl, C_{1-4} alkoxy, halogen, and nitro, or the pharmaceutically acceptable salt of said ester, as active ingredient, to said plants and animals.

2. An anti-coccidial composition which comprises an anti-coccidially effective amount of a K-41.C(2) ester of the formula:



I

wherein Me is methyl and R is phenyl-C_{1-4} alkyl, C_{1-4} alkoxy, phenyl-C_{1-4} alkoxy, phenyl, or phenyl substituted with 1 to 3 groups selected form the group consisting of C_{1-4} alkyl, C_{1-4} alkoxy, halogen, and nitro, or the pharmaceutically acceptable salt of said ester, as active ingredient and a carrier.

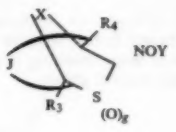
4,424,213

BIOLOGICALLY ACTIVE HETEROBICYCLIC HYDROXIMIDATES AND THIOLHYDROXIMIDATES AND CARBAMATE ESTER DERIVATIVES THEREOF

Thomas A. Magee, Mentor; Robert D. Battershell, Painesville; Lawrence E. Limpel, Euclid, all of Ohio; Andrew W. Ho, Pinole, Calif.; Arthur W. Friedman, Beachwood, Ohio; H. Glenn Corkins, Ewing, N.J.; William W. Brand, Painesville, Ohio; Russell Buchman, Madison, Ohio; Louis Storace, Mentor-on-Lake, Ohio, and Edmond R. Osgood, Mentor, Ohio, assignors to SDS Biotech Corporation, Painesville, Ohio

Continuation-in-part of Ser. No. 205,436, Nov. 10, 1980, abandoned. This application Nov. 2, 1981, Ser. No. 317,516
Int. Cl.³ A01N *43/10, 43/12, 43/18, 43/40, 43/84;* C07D *333/78, 333/80, 409/12, 417/12, 413/12*
U.S. Cl. 424—184 12 Claims

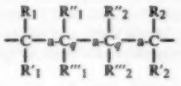
10. A method of combatting arthropods or nematodes which comprises applying to the arthropods or nematodes, or a habitat thereof, an arthropodicidally or nematicidally effective amount of at least one compound of the formula:



(III)

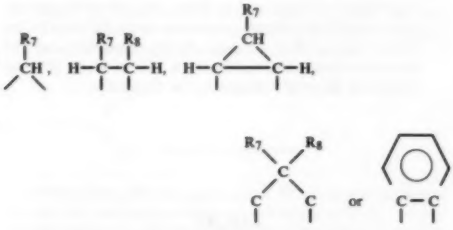
wherein

J represents the group



where q, independently, is 0 or 1, a, independently, is a single or double bond and R_1, R_1', R_1'', R_1''', R_2, R_2', $R_2$41 and R_2''' are defined below;

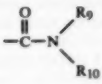
X represents a bridge member selected from



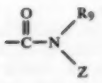
where R_7 and R_8 independently represent hydrogen, halogen, cyano, alkyl, alkoxy, alkoxycarbonyl or alkylthio;

R_1–R_1''', inclusive, R_2–R_2''', inclusive, R_3 and R_4 independently represent hydrogen, halogen, hydroxy, cyano, alkyl, alkoxy, haloalkyl, alkylcarboxy, arylcarboxy, alkylaminocarboxy, carbamoyl, alkylcarbamoyl, dialkylcarbamoyl, alkylthio, alkylsulfinyl, alkylsulfonyl, alkylamino, dialkylamino, alkoxycarbonyl, trifluoromethyl, pyrrolidyl, phenyl, nitro, thiocyano, thiocarbamyl, alkylthiocarbamyl, dialkylthiocarbamyl, arylthiocarbamyl or the group

where E is O or S and G represents alkyl, alkoxy, alkylthio, amino, alkylamino or dialkylamino;
g is 0, 1 or 2;
Y represents hydrogen or

(1) 

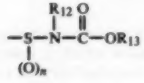
wherein R_9–R_{10} independently represent hydrogen, alkyl, hydroxyalkyl, alkenyl, alkynyl, aralkyl, alkoxyalkyl or polyoxyalkylene; or

(2) 

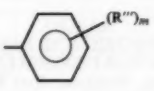
where R_9 is the same as defined before and Z represents

(a)

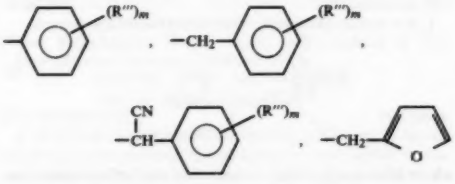
where n is 0, 1 or 2 and R_{11} is pyridyl, pyrimidyl, phenyl or phenyl substituted with one or more members selected from hydroxy, alkyl, alkoxy, halogen, nitro, trifluoromethyl or cyano;

(b) 

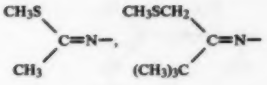
where n is 0, 1 or 2, and R_{12} is alkyl, alkoxyalkyl or



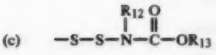
where m is 0, 1, 2 or 3 and R''' is hydrogen, halogen, cyano, nitro, alkyl, alkoxy, alkylthio, alkylsulfonyl or phenyloxy and R_{13} is alkyl, alkoxyalkyl, naphthyl, alkylthioalkyl



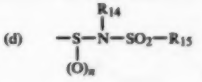
where $(R''')_m$ is as defined before,



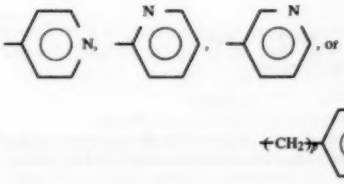
or Q where Q—OY represents formula (III) as defined herein;

(c) 

where R_{12}–R_{13} are as defined before;

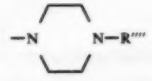
(d) 

where n is 0, 1 or 2, R_{14} is phenyl, alkyl, alkoxyalkyl, acyl, alkoxycarbonylalkyl, alkylthioalkyl, carboxyalkyl and R_{15} is alkyl,



where m is 0–5, p is 0–5 and R_{16} is halogen, alkyl, trifluoromethyl, nitro or alkoxy;
(e) —S—$NR_{17}R_{18}$ where R_{17}–R_{18} are alkyl, aryl or together with the nitrogen atom represent

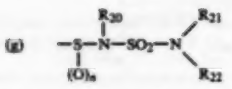
where v is 0, 1 or 2 or



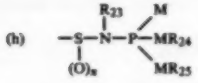
where R'''' is alkyl;

(f)

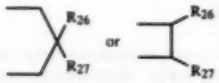
where n is 0, 1 or 2, m is 1 or 2 and R_{19} is alkyl, cycloalkyl, haloalkyl, cyanoalkyl, alkoxycarbonyl, (alkylthio)carbonyl, alkoxy(thiocarbonyl),
alkylthio(thiocarbonyl), aryl or substituted aryl with one or more substituents selected from halogen, cyano, nitro, alkyl, alkoxy, alkylthio, alkylsulfonyl or phenyloxy, with the proviso that when R_{19} is aryl or substituted aryl, m is 2;

(g) 

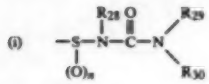
where n is 0, 1 or 2, R_{20} is alkyl and R_{21}–R_{22} are the same as R_{17}–R_{18} as defined before;

(h) 

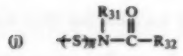
where n is 0, 1 or 2, M, independently, is S or O and R_{23}–R_{25} independently represent alkyl or R_{24} and R_{25} together represent



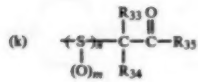
where R_{26}–R_{27} independently represent hydrogen or alkyl;

(i) 

where n is 0, 1 or 2, R_{28} is alkyl or aryl and R_{29}–R_{30} independently represent hydrogen, alkyl, aryl or alkoxy;

(j) 

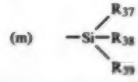
where n is 1 or 2, R_{31} is alkyl and R_{32} is fluoro, alkyl, aryl or aralkyl;

(k) 

where m is 0, 1 or 2, n is 1 or 2 and R_{33}–R_{35} independently represent hydrogen or alkyl;

(l)

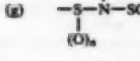
where T is O, S or $—CH_2—$, m is 1 or 2, n is 0 or 1 and R_{36}=R_{13} as defined before;

(m) 

where R_{37}–R_{39} are alkyl or aryl;

(n)

where L represents alkyl, cyano, alkoxy, aryloxy, alkylthio, arylthio or $—ON=CR_{40}R_{41}$ where R_{40}–R_{41} are the same as R_{12}–R_{13} as defined before; or

(o) 

where V represents halogen, alkoxy or alkylthio; and wherein the terms alkyl, alkoxy, alkanoyl, alkenyl, alkynyl, cycloalkyl, aryl and aralkyl used hereinabove are defined as follows, unless otherwise specified, alkyl, alkoxy and alkanoyl represent 1 to 20 carbon atoms and include all straight and branched chain moieties, alkenyl and alkynyl represent 2 to 22 carbon atoms and include all straight and branched chain moieties, cycloalkyl represents a carbocyclic ring of 3 to 8 carbon atoms, aryl represents an aromatic carbocyclic ring of 6 to 12 carbon atoms and aralkyl represents an aromatic carbocyclic ring of 6 to 12 carbon atoms with one or more alkyl groups of 1 to 8 carbon atoms including straight or branch chain moieties substituted on the ring.

4,424,214

INSECTICIDAL PYRAZOLYL PHOSPHATES

Yoshiyuki Okada, Osaka, and Yasuo Sato, Kyoto, Japan, assignors to Takeda Chemical Industries, Inc., Osaka, Japan

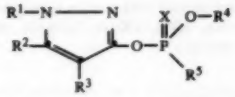
Continuation of Ser. No. 75,842, Sep. 14, 1979, abandoned. This application Apr. 12, 1982, Ser. No. 367,608

Claims priority, application Japan, Sep. 19, 1978, 53-115536

Int. Cl.³ A01N *57/16;* **C07F** *9/65*

U.S. Cl. 424—200 **14 Claims**

13. An insecticidal-acaricidal composition which comprises as an active component an insecticidally or acaricidally effective amount of a compound of the formula



wherein R^1 is a straight-chain or branched alkyl of 1 to 4 carbon atoms, phenyl, or phenyl which is substituted by a halogen or a straight-chain or branched alkyl of 1 to 4 carbon atoms; R^2 is hydrogen; R^3 is hydrogen, a halogen, or a straight chain or branched alkyl of 1 to 4 carbon atoms; R^4 is ethyl; R^5 is n-propylthio; and X is oxygen, and a carrier therefor.

4,424,215

OXIMINOPHOSPHORIC ACID DERIVATIVES, AND THEIR USE FOR CONTROLLING PESTS

Rainer Buerstinghaus, Weinheim; Karl Kiehs, Lampertheim; Walter Seufert, Ludwigshafen, and Heinrich Adolphi, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

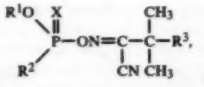
Filed Aug. 26, 1982, Ser. No. 411,870

Claims priority, application Fed. Rep. of Germany, Sep. 5, 1981, 3135182

Int. Cl.³ A01N *57/14;* **C07F** *9/165*

U.S. Cl. 424—210 **5 Claims**

1. An oximinophosphoric acid derivative of the formula



(I)

where R^1 is straight-chain or branched alkyl of not more than 4 carbon atoms, R^2 is a straight-chain or branched alkoxy or alkylthio group of not more than 4 carbon atoms, straight-

chain or branched alkoxyalkylthio of not more than 6 carbon atoms, straight-chain or branched alkyl of not more than 3 carbon atoms, phenyl or a straight-chain or branched alkylamino or dialkylamino radical where each alkyl is of not more than 4 carbon atoms, R^3 is straight-chain or branched alkoxy of not more than 4 carbon atoms or methoxymethyl, and X is oxygen or sulfur.

5. A process for combating pests, wherein an effective amount of an oximinophosphoric acid derivative of the formula I as claimed in claim 1 is allowed to act on the pests or their habitat.

4,424,216

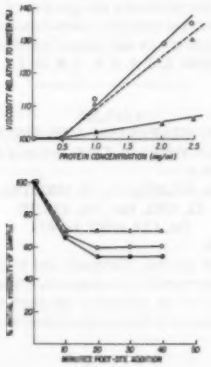
METHOD FOR THE REDUCTION OF MUCIN VISCOSITY

Anthony Cerami, Flanders, N.J., and Nina F. Tabachnik, Little Neck, N.Y., assignors to The Rockefeller University, New York, N.Y.

Filed Jul. 31, 1979, Ser. No. 62,503

Int. Cl.³ A01N *31/66, 31/15, 31/44, 31/47*

U.S. Cl. 424—211 **8 Claims**



1. A method for reducing mucin viscosity in humans which comprises administering to said human effective a pharmaceutically effective dose of one or more compounds having protected sulfhydryl groups which metabolize in vivo to produce free sulfhydryl groups.

4,424,217

SUBSTITUTED PHENYL PHOSPHOROTHIOATES AND THEIR USE AS PESTICIDES

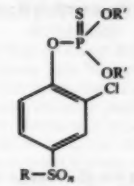
Walter Reifschneider, Walnut Creek, Calif., assignor to The Dow Chemical Company, Midland, Mich.

Filed Oct. 2, 1981, Ser. No. 307,966

Int. Cl.³ A01N *57/14;* **C07F** *9/165*

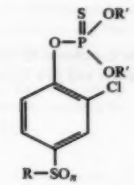
U.S. Cl. 424—216 **15 Claims**

1. A method for killing and controlling codling moth larvae which comprises contacting said larvae or their habitat with a composition containing, as an active ingredient, an insecticidally effective amount of at least one compound of the formula



wherein R is a tertiary butyl or tertiary amyl group, R′ is methyl or ethyl and n is an integer from one to two in intimate admixture with an inert carrier therefor.

6. The compound having the structural formula



wherein R is a tertiary butyl or tertiary amyl group, R′ is methyl or ethyl and n is an integer from one to two.

4,424,218

NOVEL 3 α-AMINO STEROIDS

Roger Deraedt, Pavillons-sous-Bois; Vesperto Torelli, Maisons-Alfort; Jean Vacher, Paris, and Josette Benzoni, Livry-Gargan, all of France, assignors to Roussel Uclaf, Paris, France

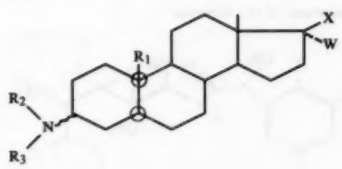
Continuation-in-part of Ser. No. 177,845, Aug. 14, 1980, abandoned. This application Aug. 14, 1981, Ser. No. 292,791

Claims priority, application France, Aug. 17, 1979, 79 20840; Nov. 21, 1980, 80 24750

Int. Cl.³ A01N *45/00*

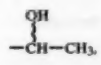
U.S. Cl. 424—238 **10 Claims**

1. A compound selected from the group consisting of 3-amino-steroids of the formula



I

wherein W is selected from the group consisting of hydrogen and —OH, X is



the wavy line indicates the substituent has the α- or β-position, R_1 is selected from the group consisting of hydrogen and $-CH_3$, R_2 is selected from the group consisting of hydrogen and alkyl of 1 to 5 carbon atoms, R_3 is selected from the group consisting of hydrogen, alkyl of 1 to 5 carbon atoms, hydroxyalkyl of 2 to 5 carbon atoms, acyl of an organic acid of 2 to 8 carbon atoms, alkoxycarbonyl of 2 to 8 carbon atoms, acyl of an α-amino carboxylic acid and a peptide of 2 to 3α-amino-carboxylic acids and their non-toxic, pharmaceutically acceptable

acid addition salts with the proviso that R_2 and R_3 are not both hydrogen and (i) when R_1 is methyl, R_2 and W are hydrogen, X is

with the —OH having the (S) configuration and the amino group is in the α-position in the case R_3 is not methyl (ii) R_2 and W are hydrogen, X is

and the 3-amino is in the α-position in the case at least one of R_1, R_2 and R_3 is not methyl and (iii) R_2 and W are hydrogen, R_1 is methyl, X is

with the —OH having the (R) configuration and the 3-amino-in the α-position in the case R_3 is not ethoxycarbonyl.

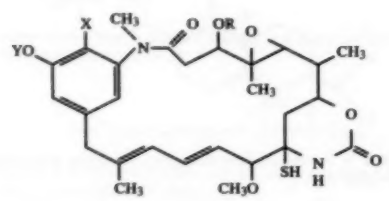
4,424,219

9-THIOMAYTANSINOIDS AND THEIR PHARMACEUTICAL COMPOSITIONS AND USE

Naoto Hashimoto, and Hiroshi Shimadzu, both of Osaka, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed May 3, 1982, Ser. No. 374,158
Claims priority, application Japan, May 20, 1981, 56/76993
Int. Cl.³ A61K *31/535*; C07D *498/06*
U.S. Cl. 424—248.54 **10 Claims**

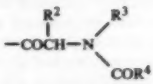
1. A compound of the formula:



wherein R is hydrogen or C_{1-20} acyl of the formula:

$$—COR^1$$

wherein R^1 is hydrogen, C_{1-18} alkyl, C_{2-20} alkenyl, C_{3-10} cycloalkyl, phenyl or naphthyl, any of said groups being unsubstituted or substituted by C_{1-4} alkoxy, C_{2-4} alkanoyl, C_{2-4} alkanoyloxy, C_{2-4} alkoxycarbonyl, halogen, hydroxyl, nitro, cyano, trifluoromethyl, amino, mono(C_{1-4} alkyl)amino, di(C_{1-4} alkyl)amino, C_{1-4} alkylthio, C_{1-4} alkylsulfinyl, C_{1-4} alkanesulfonyl, oxo, thioxo or C_{1-4} alkanoylamino, said cycloalkyl, phenyl and naphthyl being attached, directly or through C_{1-4} alkylene, to the carbonyl group in the acyl R, or R is of the formula:



wherein

R^2 is hydrogen, C_{1-18} alkyl, C_{1-10} cycloalkyl, phenyl, or naphthyl,

R^3 is hydrogen, C_{1-18} alkyl, C_{3-10} cycloalkyl, phenyl or naphthyl, and

R^4 is hydrogen, C_{1-18} alkyl, C_{2-10} alkenyl, C_{3-10} cycloalkyl, phenyl or naphthyl,

any of said groups in R^2, R^3 and R^4 being unsubstituted or substituted by C_{1-4} alkoxy, C_{2-4} alkanoyl, C_{2-4} alkanoyloxy, C_{2-4} alkoxycarbonyl, halogen, hydroxyl, nitro, cyano, trifluoromethyl, amino, mono(C_{1-4} alkyl)amino, di(C_{1-4} alkyl)amino, C_{1-4} alkylthio, C_{1-4} alkylsulfinyl, C_{2-4} alkanesulfonyl, oxo, thioxo or C_{1-4} alkanoylamino, and said cycloalkyl, cycloalkenyl, phenyl and naphthyl in R^2, R^3 and R^4 being attached, directly or through C_{1-4} alkylene, to the α-carbon atom, N-atom or the carbonyl group on the N-atom in R; X is chlorine or hydrogen; and Y is hydrogen, C_{1-4} alkylsulfonyl, or C_{1-8} alkyl or phenyl-C_{1-4} alkyl which are unsubstituted or substituted by hydroxyl, amino, C_{1-4} alkanoylamino, C_{1-4} alkyloxy, benzyloxy, oxo, halogen, trifluoromethyl, C_{2-5} alkoxycarbonyl, methylenedioxy or/and C_{1-4} alkylthio.

10. A method for inhibiting the growth of tumor cells and prolonging the survival time of a warm-blooded animal, which comprises administering to said animal an effective amount of a compound of claim 2, 3, 4, 5, 6, 7, 8, or 1.

4,424,220

TREATMENT OF GIARDIASIS AND TRICHOMONIASIS

Ching C. Wang, San Francisco, Calif., assignor to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 347,655, Feb. 10, 1982. This application Sep. 22, 1982, Ser. No. 421,595
Int. Cl.³ A61K *31/495*
U.S. Cl. 424—250 **1 Claim**

1. A method of treating giardiasis and trichomoniasis in a human which comprises the administration to a human in need of said treatment of an effective antigiardiasis and antitrichomoniasis amount of 2-hydroxypyrazine-4-oxide.

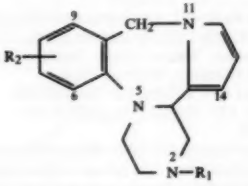
4,424,221

METHOD OF TREATING ANXIETY

Jan W. F. Wasley, Chatham, N.J., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Sep. 28, 1982, Ser. No. 426,424
Int. Cl.³ A61K *31/495*
U.S. Cl. 424—250 **7 Claims**

1. A method of treating anxiety in mammals comprising the enteral or parenteral administration to a mammal in need thereof of an effective amount of an anxiolytic compound or of an effective amount of a pharmaceutical composition comprising an anxiolytic compound of formula I



(I)

wherein R_1 is hydrogen, lower alkyl, lower alkenyl, cyclopropyl(lower)alkyl, lower alkanoyloxy(lower)alkyl or hy-

droxy-(lower)alkyl; R_2 is hydrogen, halogen or trifluoromethyl; or a pharmaceutically acceptable salt thereof, in combination with one or more pharmaceutical carriers.

4,424,222

PYRIDOBENZODIAZEPINONES, PHARMACEUTICAL COMPOSITIONS AND METHOD OF USE THEREOF

Wolfhard Engel; Günther Schmidt, both of Biberach; Günter Trummlitz, Warthausen; Wolfgang Eberlein, Biberach, all of Fed. Rep. of Germany; Rudolf Hammer, Milan, and Piero D. Soldato, Monza, both of Italy, assignors to Karl Thomae GmbH, Biberach an der Riss, Fed. Rep. of Germany

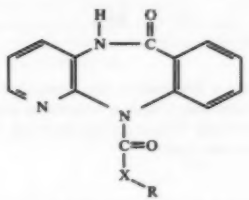
Filed Jan. 31, 1983, Ser. No. 462,183

Claims priority, application Fed. Rep. of Germany, Feb. 9, 1982, 3204401

Int. Cl.³ A61K *31/55;* C07D *471/04*

U.S. Cl. 424—250 13 Claims

1. A compound of the formula



(I)

wherein X is oxygen, —NH—, or —NCH_3— and R is 1-methyl-4-piperidinyl, 4-methyl-1-piperazinyl, or a 3α- or 3β-tropanyl group, each of the groups being optionally substituted by a further methyl group, a diastereomer or enantiomer thereof, or a non-toxic, pharmaceutically acceptable acid addition salt thereof.

4,424,223

POLYCYCLIC COMPOUNDS CONTAINING A DOUBLE BOND IN THE D-RING PHARMACEUTICAL COMPOSITIONS CONTAINING THEM, AND METHODS OF TREATING PSORIASIS WITH THEM

Tibor Keve; Bela Zsadon; Gyorgy Fekete; Csaba Lorincz, all of Budapest; Janos Galambos, Erd; Maria Zajer nee Balazs, Budapest; Lilla Forgach, Budapest; Egon Karpati, Budapest; Arpad Kiraly, Budapest; Gyongyver Kiraly nee Soos, Budapest; Laszlo Szporny, Budapest, and Bela Rosdy, Budapest, all of Hungary, assignors to Richter Gedeon Vegyeszeti Gyar RT, Budapest, Hungary

Filed Feb. 4, 1982, Ser. No. 345,630

Claims priority, application Hungary, Feb. 11, 1981, 321

Int. Cl.³ A61K *31/435;* C07D *461/00*

U.S. Cl. 424—256 6 Claims

1. 17,18-Dehydro-apovincaminol-3′,4′,5′-trimethoxy-benzoate or a pharmaceutically acceptable acid addition salt thereof.

2. A pharmaceutical composition for treating psoriasis which comprises as active ingredient a pharmaceutically effective amount of 17,18-dehydro-apovincaminol-3′,4′,5′-trimethoxy-benzoate or a pharmaceutically acceptable acid addition salt thereof in combination with at least one pharmaceutically inert carrier or diluent.

4. A method of treating psoriasis which comprises the steps of applying to the skin a composition containing a pharmaceutically effective amount of 17,18-dehydro-apovincaminol-3′,4′,5′-trimethoxy-benzoate or a pharmaceutically acceptable acid addition salt thereof.

4,424,224

APOVINCAMINOL DERIVATIVE AND COMPOSITIONS AND METHODS UTILIZING IT FOR TREATING PSORIASIS

Csaba Szantay; Lajos Szabo; Gyorgy Kalaus; Zsuzsanna Gyulai; Maria Zajer nee Balazs; Lilla Forgach; Egon Karpati; Arpad Kiraly; Gyongyver Kiraly nee Soos; Laszlo Szporny, and Bela Rosdy, all of Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar Rt, Budapest, Hungary

Filed Feb. 4, 1982, Ser. No. 345,632

Claims priority, application Hungary, Feb. 11, 1981, 322

Int. Cl.³ A61K *31/435;* C07D *461/00*

U.S. Cl. 424—256 6 Claims

1. Apovincaminol-3′,4′, 5′-trimethoxy-benzoate and acid addition salts thereof.

2. An anti-psoriasis composition for the treatment of said disease and for the prophylaxis of the recurrence of such disease which comprises a pharmaceutically effective amount of apovincaminol-3′,4′, 5′-trimethoxy-benzoate or a pharmaceutically acceptable acid addition salt thereof in admixture with a pharmaceutically acceptable inert carrier or auxiliary agent.

6. A method for the treatment or prophylaxis of psoriasis which comprises the step of treating the skin surface with a pharmaceutically effective amount of the anti-psoriasis composition defined in claim 2.

4,424,225

THIENOBENZODIAZEPINONES, PHARMACEUTICAL COMPOSITIONS THEREOF AND METHOD OF USE THEREOF

Günther Schmidt; Wolfgang Eberlein; Wolfhard Engel, all of Biberach; Günter Trummlitz, Warthausen, all of Fed. Rep. of Germany; Rudolf Hammer, Milan, and Piero Del Soldato, Monza, both of Italy, assignors to Dr. Karl Thomae GmbH, Biberach an der Riss, Fed. Rep. of Germany

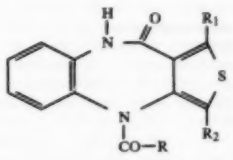
Filed Jan. 31, 1983, Ser. No. 462,379

Claims priority, application Fed. Rep. of Germany, Feb. 6, 1982, 3204153

Int. Cl.³ C07D *513/04;* A61K *31/55*

U.S. Cl. 424—256 5 Claims

1. A compound of the formula



(I)

wherein

R_1 is hydrogen or alkyl having from 1 to 4 carbon atoms;

R_2 is hydrogen, halogen, or alkyl having from 1 to 4 carbon atoms; and

R is (1-methyl-4-piperidinyl)methyl, (1-methyl-1,2,5,6-tetrahydro-4-pyridinyl)methyl, 1-methyl-1,2,5,6-tetrahydro-4-pyridinyl, (1-methyl-4-piperidinylidene)-methyl, or (8-methyl-8-azabicyclo[3.2.1]oct-3-yl)-methyl, each of which can optionally have an additional methyl substituent on the heterocyclic ring,

a diastereoisomer or enantiomer thereof, or a non-toxic, pharmacologically acceptable acid addition salt thereof with an inorganic or organic acid.

5. The method of inhibiting the formation of gastric ulcers in a warm-blooded animal in need thereof, which comprises perorally, parenterally, or rectally administering to said animal an effective anti-ulcerogenic amount of a compound of claim 1.

4,424,226

PYRIDOBENZODIAZEPINONES, PHARMACEUTICAL COMPOSITIONS THEREOF AND METHOD OF USE THEREOF

Wolfgang Eberlein, Biberach; Günter Trummlitz, Warthausen; Günther Schmidt; Wolfhard Engel, both of Biberach, all of Fed. Rep. of Germany; Rudolf Hammer, Milan, and Piero Del Soldato, Monza, both of Italy, assignors to Dr. Karl Thomae GmbH, Biberach an der Riss, Fed. Rep. of Germany

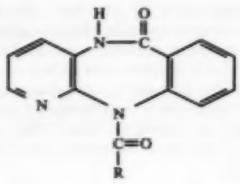
Filed Jan. 31, 1983, Ser. No. 462,377

Claims priority, application Fed. Rep. of Germany, Feb. 9, 1982, 3204403

Int. Cl.³ A61K *31/55;* C07D *471/04*

U.S. Cl. 424—263 6 Claims

1. A compound of the formula



(I)

wherein R is (1-methyl-4-piperidinyl)methyl, (1-methyl-1,2,5,6-tetrahydro-4-pyridinyl)methyl, 1-methyl-1,2,5,6-tetrahydro-4-pyridinyl, (1-methyl-4-piperidinylidene)methyl, 2,3-dehydro-8-methyl-8-azabicyclo[3.2.1]oct-3-yl-methyl group, or endo or exo-8-methyl-8-azabicyclo[3.2.1]oct-3-yl-methyl, each of which may optionally have one or two methyl substituents on the six-membered heterocyclic ring, a diastereomer or entaniomer thereof, or a non-toxic, pharmacologically acceptable acid addition salt thereof with an inorganic or organic acid.

6. The method of inhibiting the formation of gastric ulcers is a warm-blooded animal in need thereof, which comprises perorally, parenterally, or rectally administering to said animal an effective anti-ulcerogenic amount of a compound of claim 1.

4,424,227

GASTRIC CYTOPROTECTION WITH HETEROCYCLIC SULFONAMIDES

Andre Robert, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed May 5, 1982, Ser. No. 375,144

Int. Cl.³ A61K *31/425*

U.S. Cl. 424—270 6 Claims

1. A method of preventing a gastrointestinal inflammatory disease in a mammal with high susceptibility to the acquisition of said disease, which comprises:

administering to said mammal systemically an amount effective to prevent the development of said disease of a compound selected from the group consisting of

N-methyl-2-benzothiazolesulfonamide;

5-(2-methylpropionamido)-1,3,4-thiadiazole-2-sulfonamide;

5-acetamido-1,3,4-thiadiazole-2-sulfonamide; and

6-ethoxy-2-benzothiazolesulfonamide.

4,424,228

ANTIHYPERTENSIVE AGENT COMPRISING A THIAZOLIDINE CARBOXYLIC ACID AND PROBENECID

Tadashi Iso, Sakai, and Hideyasu Yamauchi, Osaka, both of Japan, assignors to Santen Pharmaceutical Co., Ltd., Osaka, Japan

PCT No. PCT/JP81/00236, § 371 Date May 4, 1982, § 102(e) Date May 4, 1982, PCT Pub. No. WO82/00954, PCT Pub. Date Apr. 1, 1982

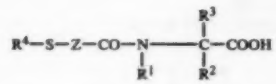
PCT Filed Sep. 18, 1981, Ser. No. 380,664

Claims priority, application Japan, Sep. 20, 1980, 55-131348

Int. Cl.³ A61K *31/425*

U.S. Cl. 424—270 8 Claims

1. An antihypertensive composition comprising (1) an antihypertensive effective amount of an N-(mercaptoacyl)-amino acid and (2) probenecid, said N-(mercaptoacyl)-amino acid having the formula



wherein

R^1 and R^2 join to form a thiazolidine ring substituted with phenyl, or phenyl substituted with a substituent selected from the group consisting of lower alkyl, hydroxy, lower alkoxy, halogen, nitro and amino;

R^3 is hydrogen;

R^4 is hydrogen; and

Z is a straight or branched alkylene containing 1 to 3 carbon atoms.

4,424,229

FLUORINE CONTAINING 2,4,5-TRIPHENYLIMIDAZOLES

Dan Jorgensen, Vedbaek, and Hjarne Dyrsting, Virum, both of Denmark, assignors to A/S Dumex (Dumex Ltd.), Copenhagen, Denmark

Continuation-in-part of Ser. No. 32,691, Apr. 23, 1979, abandoned. This application Mar. 10, 1982, Ser. No. 356,643

Int. Cl.³ A61K *31/415;* C07D *233/56*

U.S. Cl. 424—273 R 2 Claims

1. The chemical compound 2-(2,4-difluorophenyl)-4,5-bis(4-methoxyphenyl)imidazole.

2. An analgesic composition which comprises an analgesic effective amount of the compound 2-(2,4-difluorophenyl)-4,5-bis(4-methoxyphenyl)imidazole and a pharmaceutically acceptable carrier.

4,424,230

6-(1'-HYDROXYETHYL)-3-SUBSTITUTED AMINO-1-AZABICYCLO-[3.2.0]HEPT-2-EN-7-ONE-2-CARBOXYLIC ACID

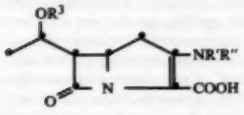
Burton G. Christensen, Scotch Plains, and Ronald W. Ratcliffe, Matawan, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 843,613, Oct. 19, 1977, abandoned. This application Jul. 11, 1980, Ser. No. 167,592

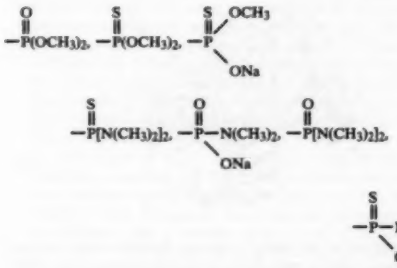
Int. Cl.³ C07D *487/04, 205/08;* A61K *31/40, 31/495*

U.S. Cl. 424—274 4 Claims

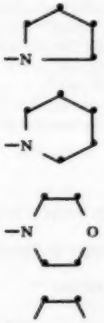
1. A compound having the structural formula:



and the pharmaceutically acceptable salts thereof; wherein: R^3 is H, or is selected from the group consisting of: formyl, acetyl, propionyl, butyryl, chloroacetyl, methoxyacetyl, aminoacetyl, methoxycarbonyl, ethoxycarbonyl, methylcarbamoyl, ethylcarbamoyl, phenylthiocarbonyl, 3-aminopropionyl, 4-aminobutyryl, N-methylaminoacetyl, N,N-dimethylaminoacetyl, 3-(N,N-dimethyl)amino propionyl, guanidinoacetyl, 3-guanidinopropionyl, N^3-methylguanidinopionyl, hydroxyacetyl, 3-hydroxypropionyl, acryloyl, propynoyl, malonyl, phenoxycarbonyl, amidinoacetyl, acetamidinoacetyl, amidinopropionyl, acetamidinopropionyl, guanylureidoacetyl, guanylcarbamoyl, carboxymethylaminoacetyl, sulfoacetylaminoacetyl, phosphonoacetylaminoacetyl, N^3-dimethylaminoacetamidinopropionyl, uredocarbonyl, dimethylaminoguanylthioacetyl, 3(5-aminoimidazol-1-yl)-propionyl, 3-sydnonylacetyl, o-aminomethylbenzoyl, o-aminobenzoyl, sulfo, phosphono,



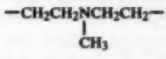
and R′ and R″ are independently selected from the group consisting of hydrogen, substituted with 1-3 substituents and unsubstituted: alkyl and cycloalkyl having 1-10 carbon atoms, phenylalkyl and heterocyclyalkyl wherein the alkyl moiety was 1-6 carbon atoms and the heterocyclyl is selected from the group consisting of:



and the cyclic group formed by the joining of R′ and R″ is selected from:

$-(CH_2)_5-$

$-CH_2CH_2-O-CH_2-CH_2-$



wherein the ring or chain substituent or substituents on R′, R″ or the cyclic radical formed by their joinder are selected from: amino, mono- and dialkylamino (each alkyl having 1-6 carbon atoms), hydroxyl, carboxyl, alkoxyl having 1-6 carbon atoms chloro, bromo, fluoro, nitro, sulfamoyl, phenyl, benzyl, and alkoxylcarbonyl having 1-3 carbon atoms in the alkoxyl moiety.

4. An antibacterial pharmaceutical composition comprising, in unitary dosage form, a therapeutically effective amount of a compound according to claim 1 and a pharmaceutical carrier therefor.

4,424,231

COMPOUNDS

John R. Bantick, Loughborough; John Fuher, Alvaston; David N. Hardern, and Thomas B. Lee, both of Loughborough, all of England, assignors to Fisons Limited, Ipswich, England

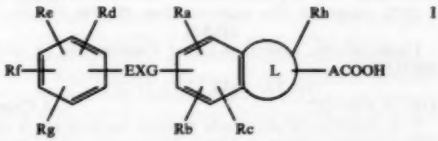
Filed Mar. 19, 1982, Ser. No. 359,817

Claims priority, application United Kingdom, Mar. 24, 1981, 8109090; Jul. 1, 1981, 8120255

Int. Cl.³ A61K *31/34;* **C07D** *307/80, 307/83, 307/84*

U.S. Cl. 424—274 **10 Claims**

1. A compound of formula I,



I

in which

Ra, Rb, Rc, Rd, Re, Rf and Rg, which may be the same or different, each represent hydrogen, amino, hydroxy, alkoxy, alkenyloxy, halogen, acyl, alkenyl, alkyl, or alkoxy substituted by phenyl,

Rh is hydrogen, alkyl or —COOH,

X is a hydrocarbon chain containing from 2 to 10 carbon atoms and optionally substituted by a hydroxy group,

A has no significance or represents Y, OY, or SY and Y represents a C 1 to 4 hydrocarbon chain which is optionally substituted by alkyl C 1 to 4,

E and G, which may be the same or different, each represent —O—, —S— or $-CH_2-$, provided that at least one of E and G is —O— or —S—,

L, together with the carbon atoms to which it is attached, forms a furan, thiophene, or pyrrole ring,

Ra, Rb, Rc, Rd, Re, Rf, Rg and Rh, when they contain carbon, each containing less than 7 carbon atoms,

and pharmaceutically acceptable salts, esters and amides thereof.

10. A method of treatment of a disorder in which SRS-A is a factor, which comprises administration of an effective amount of a compound according to claim 1 to a patient suffering from such a condition.

4,424,232

TREATMENT OF HERPES SIMPLEX

Richard W. Parkinson, 863 S. Carterville Rd., Orem, Utah 84057

Filed May 19, 1982, Ser. No. 379,737

Int. Cl.³ A61K *31/335*

U.S. Cl. 424—279 **10 Claims**

1. A method of treating herpes simplex comprising topically

applying to the area affected an effective amount of a composition comprising from about 2% to 30% by weight L-lysine, from about 10 to 10,000 parts per million by weight gibberellic acid, and from about 0.5% to 20% by weight urea in an inert carrier comprising water.

4,424,233

PYRETHROID PESTICIDAL COMPOSITION

John S. Badmin, Isle of Sheppey, and Barry J. Mears, Sittingbourne, both of England, assignors to Shell Oil Company, Houston, Tex.

Continuation of Ser. No. 965,002, Nov. 30, 1978, abandoned. This application Jun. 10, 1982, Ser. No. 387,121

Claims priority, application United Kingdom, Apr. 12, 1978, 14341/78

Int. Cl.³ A01N *55/04*

U.S. Cl. 424—288 3 Claims

1. An acaricidal composition comprising as the essential active ingredients

(a) di[tri-(2-methyl-2-phenylpropyl)tin]oxide; and

(b) alpha-cyano-3-phenoxybenzyl alpha-isopropyl-p-chlorophenyl-acetate in a ratio of (b) to (a) of from about 1 to 5.

4,424,234

SKIN TREATMENT COMPOSITIONS

Susan G. Alderson, Morecambe; Martin D. Barratt, Sharnbrook, and John G. Black, Harrold, all of England, assignors to Lever Brothers Company, New York, N.Y.

Continuation-in-part of Ser. No. 203,287, Nov. 3, 1980, abandoned, which is a continuation of Ser. No. 59,912, Jul. 23, 1979, abandoned. This application Dec. 29, 1980, Ser. No. 220,875

Claims priority, application United Kingdom, Jul. 24, 1978, 30871/78

Int. Cl.³ A61K *31/19, 31/20*

U.S. Cl. 424—317 5 Claims

1. A cosmetically acceptable aqueous composition in the form of lotions, creams, gels and solid sticks for topical application to the skin, comprising from 0.5 to 20% by weight of an hydroxy alkanoic acid selected from the group consisting of α-hydroxy-n-caproic acid, α-hydroxy-n-caprylic acid and mixtures thereof, together with a cosmetically acceptable vehicle other than water.

4,424,235

HYDRODYNAMICALLY BALANCED CONTROLLED RELEASE COMPOSITIONS CONTAINING L-DOPA AND A DECARBOXYLASE INHIBITOR

Prabhakar R. Sheth, Pearl River, N.Y., and Jacques L. Tossounian, Pine Brook, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation of Ser. No. 301,498, Sep. 14, 1981, abandoned. This application Nov. 1, 1982, Ser. No. 438,205

Int. Cl.³ A61K *31/195*

U.S. Cl. 424—319 20 Claims

1. A hydrodynamically balanced controlled release composition comprising

(a) as the active ingredient, an amount of L-Dopa which is effective in achieving desired levels of L-Dopa in the blood and an amount of a decarboxylase inhibitor selected from the group consisting of N^1-dl-seryl-N^2-(2,3,4-trihydroxybenzyl) hydrazine hydrochloride, β-(3,4-dihydroxyphenyl)-α-hydrazino-αmethyl propionic acid, m-hydroxybenzylhydrazine and β-methyldopa, which is effective for the amount of L-Dopa in the composition and wherein the ratio of L-Dopa to decarboxylase inhibitor ranges from about 4:1 to about 10:1 and,

(b) in percents by weight based on the total weight of the composition, from about 5% to about 80% of a hydrocolloid or mixture of hydrocolloids selected from the group consisting of acacia, gum tragacanth, locust bean gum, guar gum, karaya gum, agar, pectin, carrageen, soluble and insoluble alginates, methylcellulose, hydroxy-propyl methylcellulose, hydroxypropylcellulose, sodium carboxymethylcellulose, carboxypolymethylene, gelatin, casein, zein and bentonite; up to about 60% of a fatty material or mixture of fatty materials selected from the group consisting of beeswax, cetyl alcohol, stearyl alcohol, glycerylmonostearate, hydrogenated caster oil and hydrogenated cottonseed oil and up to about 80% of edible inert pharmaceutical adjunct materials whereby said composition, when used in capsule or tablet form, is hydrodynamically balanced so that, upon contact with gastric fluid, said capsule or tablet acquires and maintains a bulk density of less than one thereby being buoyant in the gastric fluid and remaining buoyant in the gastric fluid of the stomach until substantially all of the active ingredients contained therein have been released.

4,424,236

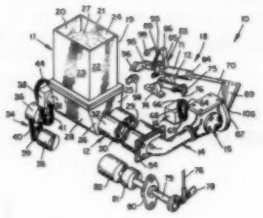
METHOD OF SEPARATING A VISCOUS FLOWABLE PASTE MATERIAL

Sterret P. Campbell, 3095 Kingston Ct., Norcross, Ga. 30071

Division of Ser. No. 194,066, Oct. 6, 1980, Pat. No. 4,332,538. This application May 21, 1982, Ser. No. 380,559

Int. Cl.³ G01N *33/02;* A21C *11/10;* A23P *1/00*

U.S. Cl. 426—231 6 Claims



1. A method of separating a viscous flowable paste material from a large mass of material into smaller masses of predetermined volumes of the material comprising the steps of continuously moving the material from the mass of material through a volume measuring means and then from the volume measuring means through the opening of a nozzle, continuously measuring the volume of the material moving through the volume measuring means, and in response to predetermined volumes of the material having moved through the volume measuring means continually, severing the material at the nozzle opening into volumes of material corresponding to the predetermined volumes of the material measured by the volume measuring means by moving a paddle member in biased contact with the nozzle across the nozzle opening from one side to the other side of the nozzle opening and returning the paddle to the one side of the nozzle opening through a path displaced from the nozzle opening so as to avoid contact with the material moving through the nozzle opening.

4,424,237

HYDRATED EMULSIFIER FOR USE IN FLOUR BASED BAKED GOODS

James S. Wittman, III, Rockton, Ill., assignor to Batter-Lite Foods, Inc., Beloit, Wis.

Filed Mar. 22, 1982, Ser. No. 360,472

Int. Cl.³ A21D *2/16;* A23D *5/00*

U.S. Cl. 426—653 11 Claims

9. A process for making a hydrated emulsifier for use as a partial or complete replacement for shortening in flour based baked goods comprising the steps:

(1) melting and combining stearyl monoglyceridyl citrate, in amounts from about 2% to about 8.5%, propylene glycol monostearate, in amounts from about 4% to about 16%,

and lactated monoglycerides, in amounts from about 4% to about 16%, all percentages by weights;

(2) adding water, in amounts from about 55% to about 90% by weight, to the combined melted components in step 1, said water being at a temperature which is substantially the same or greater than the temperature of the melted components;

(3) mixing the emulsifiers and water to form an aqueous dispersion;

(4) cooling the aqueous dispersion.

4,424,238
ADHESIVE FOR BONDING POLYESTER FIBROUS MATERIAL TO RUBBER COMPOSITIONS

Toshihiro Yotsumoto, Higashimurayama, and Kazuo Koyama, Sayama, both of Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan

Filed Apr. 6, 1982, Ser. No. 366,033

Claims priority, application Japan, Apr. 10, 1981, 56-52938

Int. Cl.³ B05D *3/02;* **C08L** *61/14*

U.S. Cl. 427—381 **3 Claims**

1. An adhesive for bonding polyester material to rubber compositions comprising a mixture of components A and B in a weight mixing ratio of A/B of not less than 100/5 but less than 100/30,

said component A being a formaldehyde condensate obtained by reacting formaldehyde with one member selected from the following members (1)–(4): (1) a mixture of resorcin with one compound selected from the group consisting of m-cresol, m-methoxyphenol, 3,5-xylenol and m-xylene; (2) a mixture of 5-methylresorcin with m-cresol or with m-methoxyphenol; (3) a mixture of m-cresol with p-chlorophenol; and (4) m-cresol, in the presence of an acidic catalyst and having substantially an average molecular weight of 300–600, and

said component B being one member selected from the following members (5)–(7): (5) a formaldehyde condensate obtained by reacting formaldehyde with one member selected from the group consisting of 3,5-xylenol, m-t-butylphenol and a mixture of m-cresol with m-t-butylphenol in the presence of an acidic catalyst and having substantially an average molecular weight of 200–500; (6) 4,4′-thio-bis(6-t-butyl-3-methylphenol); and (7) 1,1′-bis(2,4-dihydroxyphenyl)disulfide.

4,424,239
LIQUID COATING COMPOSITION FOR METAL SURFACES, AND A PROCESS FOR COATING THEM WITH SUCH A COATING COMPOSITION

Gabriel H. A. Nota, Chantilly, and Anton Toth, Creil, both of France, assignors to Astral Societe de Peintures et Vernis, Saint-Denis and ATO Chimie, Paris La Defense, both of, France

Filed Dec. 23, 1982, Ser. No. 452,722

Claims priority, application Netherlands, Dec. 24, 1981, 8105834

Int. Cl.³ B05D *3/02*

U.S. Cl. 427—388.3 **27 Claims**

21. A process for coating a metal surface with a liquid coating composition comprising a binder which is made up of 10–80% by weight of a solid, powdered polyamide having a softening point of 110° to 230° C. and an average particle size of 0.5 to 200 μm, and 20–90% by weight of a hydroxyl groups-containing polymer having a number average molecular weight of 800 to 20 000 and a hydroxyl functionality of 1.5–6, and the composition also contains a cross-linking agent for the hydroxyl groups-containing polymer in such an amount that the molar ratio of the reactive groups of the cross-linking agent to that of the hydroxyl groups-containing polymer is in the range of 0.6–1.5, and the composition contains 40–60% by weight of organic solvent for the hydroxyl groups-containing polymer, having a boiling point of 140°–310° C. which coating composition is applied to the metal surface and cured at a temperature of the metal above the softening point of the polyamide and in the range of about 200° to about 280° C.

4,424,240
POLYMERS ADHERENT TO POLYOLEFINS

Andrew J. Kielbania, Jr., Chalfont, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

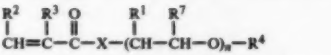
Division of Ser. No. 37,069, May 8, 1979, Pat. No. 4,288,499. This application Jul. 10, 1981, Ser. No. 282,121

Int. Cl.³ B05D *3/02;* **B32B** *27/08*

U.S. Cl. 427—393.5 **6 Claims**

1. A process for preparing an article comprising an untreated polyolefin substrate and adherent thereto a vinyl addition polymer of monomers consisting essentially of (1) at least 5% by weight of a primary monomer selected from

(a) monomers having the formula



wherein X is —O—, —NH— or —NR⁵—;

R¹ and R⁷, individually, are H, methyl or ethyl;

R² and R³, individually, are H or an organic radical;

R⁴ and R⁵, individually, are monocyclic alkyl having six or more carbon atoms, acyclic alkyl having nine or more carbon atoms, or alkaryl having nine or more carbon atoms;

n having a value from zero to about ten;

(b) vinyl esters of alkanoic acids having at least eight carbon atoms;

(c) alkyl substituted styrene wherein the substituent group or groups have a total of three or more carbon atoms;

and mixtures thereof and optionally (2) one or more substituted ethylene supplementary monomers; said adherent polymer having surface energy properties such as to form a stable bond having a 180° peel strength greater than 2 pounds per inch with said substrate, and wherein a liquid or foam comprising the vinyl addition polymer is applied to the polyolefin substrate and cured or dried.

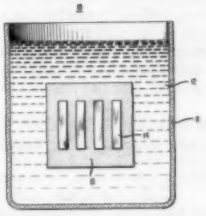
4,424,241
ELECTROLESS PALLADIUM PROCESS

Joseph A. Abys, Bridgewater, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 27, 1982, Ser. No. 424,150

Int. Cl.³ C23C *3/02*

U.S. Cl. 427—443.1 **13 Claims**



1. A process for electrolessly plating palladium on a catalytically active surface comprising the step of wetting said surface with an electroless palladium plating bath comprising reducing agent characterized in that the electroless palladium plating bath comprises

a. source of palladium in the concentration range from 0.001 to 1.0 molar;

b. sufficient acid so the pH of the bath is less than 2, and;

c. reducing agent consisting essentially of at least one com-

pound selected from the group consisting of formaldehyde, formic acid, hypophosphoric acid and trimethoxyborohydride, said reducing agent present in the concentration range from 0.001 to 2.0 molar.

4,424,242

CONTAINERS HAVING IMPROVED GAS BARRIER PROPERTIES

Robert B. Barbee, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 25, 1983, Ser. No. 488,296
Int. Cl.³ B32B *27/36*
U.S. Cl. 428—35 **9 Claims**

1. A multilayer packaging material having low gas permeability comprising

(a) at least one film comprising polyglycolic acid, and

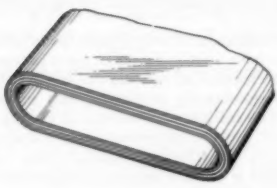
(b) at least one film formed from a polyester comprising units derived from terephthalic acid and ethylene glycol.

4,424,243

HEAT-SHRINKABLE LAMINATE FILM

Yoshiharu Nishimoto, and Kengo Yamazaki, both of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation-in-part of Ser. No. 218,401, Dec. 19, 1980, abandoned. This application Apr. 7, 1982, Ser. No. 366,412
Int. Cl.³ B32B *7/02, 27/08;* **B29G** *7/00;* **B65B** *11/00*
U.S. Cl. 428—36 **10 Claims**



1. A heat-shrinkable laminate film having heat resistance, oil resistance, gas-barrier properties and a heat-shrinkability of not less than 15% at 95° C. which comprises:

(A) a core layer of a vinylidene chloride copolymer resin;

(B) outer surface layers of linear low-density polyethylene polymers selected from the group consisting of ethylene/α-olefin copolymers having crystalline melting points of not lower than 110° C. and mixtures each comprising not less than 20% by weight of one of said ethylene/α-olefin copolymers and not more than 80% by weight of an α-olefin polymer having a crystalline melting point of from 80° to 100° C.; and

(C) one intermediate layer of a thermoplastic resin having a crystalline melting point of from 70° to 100° C. interposed between the core layer (A) and one of the surface layers (B),

the sum of the thicknesses of the layers (B) being from 1/5 to 178 of the total thickness of the layers (B) and (C).

4,424,244

PRINTABLE RELEASE COATING COMPOSITION TAPES

Frank Puskadi, Milltown, N.J., assignor to Permacel, New Brunswick, N.J.

Filed Oct. 1, 1981, Ser. No. 307,399
Int. Cl.³ B32B *25/06;* **C08F** *19/08;* **C09J** *7/02*
U.S. Cl. 428—40 **3 Claims**

1. A printable high-adhesion pressure-sensitive adhesive tape comprising a backing film or foil which is coated on one side with a high-adhesion pressure-sensitive adhesive of an elastomer and tackifier resin wherein in said adhesive, the major portion of the elastomer is of an A-B-A or A-B block copolymer wherein A is a thermoplastic polymer block derived from a vinylarene and B is an elastomeric polymer block derived from a conjugated diene and which is coated on the other side with a release coating comprising

(1) from about 85 to 15 parts by weight of a vinylidene chloride-acrylonitrile copolymer,

(2) correspondingly from about 15 to 85 parts by weight a polymer selected from the group consisting of a vinyl chloride-vintl acetate-vinyl alcohol terpolymer, a vinyl acetate-vinyl alcohol copolymer, and a solvent-soluble copolyester, and

(3) for every 100 parts of (1) and (2), from about 17.5 to 55 parts by weight of a copolymer of vinyl ester and alkyl maleate wherein the alkyl group has a chain length of at least about 16 carbon atoms,

said release coating being ink-imprintable and low-force removable from said high-adhesion pressure-sensitive adhesive.

4,424,245

THERMOSENSITIVE-RECORDING-TYPE LABEL SHEET

Keiichi Maruta, and Yukihiro Yuyama, both of Numazu, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Feb. 24, 1982, Ser. No. 352,608
Claims priority, application Japan, Mar. 5, 1981, 56-31458
Int. Cl.³ B41M *5/18*
U.S. Cl. 428—40 **10 Claims**

1. A thermosensitive-recording-type label sheet comprising:

a support material;

a thermosensitive coloring layer formed on the front side of said support material, said thermosensitive coloring layer comprising a leuco dye and an acidic material capable of coloring said leuco dye when heat is applied thereto;

a barrier layer formed on the back side of said support material opposite to said thermosensitive coloring layer, said barrier layer having a thickness of from 0.3 to 20 μm, said barrier layer comprising a water-soluble polymeric material and from 0.05 to 5 wt. % of a water-repellent wax or wax-like material based on the total weight of said barrier layer, said barrier layer being capable of preventing intrusion into said thermosensitive coloring layer of materials which may discolor said thermosensitive coloring layer; and

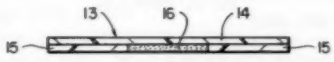
an adhesive layer formed on said barrier layer.

4,424,246

PATCH CLOSURE SYSTEM

George Pieslak, Menlo Park, and Barnie A. Wallace, Jr., Palo Alto, both of Calif., assignors to Raychem Corporation, Menlo Park, Calif.

Filed Nov. 2, 1981, Ser. No. 317,092
Int. Cl.³ B32B *3/26;* **C09J** *7/02*
U.S. Cl. 428—63 **8 Claims**



1. A heat-recoverable wraparound patch closure comprising:

a layer of cross-linked, heat-recoverable polymer, the polymer layer having opposed ends, wherein one end overlaps the other end upon assembly defining a line of overlap and the polymer layer having a first surface and

means for retaining; the line of overlap before, during and after heat recovery of the polymer layer located on the first surface of the polymer layer, the retaining means including;

i. means centrally located on the the first surface for re-

taining the line of overlap before and during heat recovery consisting of

a. a pressure sensitive adhesive, and

b. reinforcing means for preventing movement of the pressure-sensitive adhesive with respect to the polymer layer during heat recovery; and

ii. means for retaining the line of overlap after heat recovery occupying the remainder of the first surface of the patch consisting of heat-activatable adhesive being activatable at a temperature greater than the initial temperature of heat recovery of the polymer layer and which is applied directly to the polymer layer.

4,424,247

ABSORBENT POLYMER-FIBER COMPOSITES AND METHOD FOR PREPARING THE SAME

Robert E. Erickson, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Nov. 9, 1981, Ser. No. 319,538

Int. Cl.³ B32B *3/10*

U.S. Cl. 428—138 **22 Claims**

1. A method for preparing a fibrous fluff of improved absorbency, said method comprising the mechanical disintegration of a hydrophilic absorbent composite which comprises a layer of a swellable hydrophilic polymer and one or more substrates of wicking material at least partially bonded to said polymeric layers.

4,424,248

AREAL FLAT STRATIFIED BODY FOR TREATING GASES OR LIQUIDS, METHOD FOR THE MANUFACTURE THEREOF AND USE OF SUCH STRATIFIED BODY

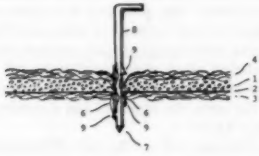
Günter H. Tesch, Fribourg, and Johannes J. V. Colijn, Thörishaus, both of Switzerland, assignors to Breveteam S.A., Zug, Switzerland

Continuation of Ser. No. 969,296, Dec. 14, 1978, abandoned. This application Jun. 22, 1981, Ser. No. 276,169

Claims priority, application Switzerland, Dec. 24, 1977, 15944/77; Nov. 23, 1978, 12022/78

Int. Cl.³ B32B *5/06*

U.S. Cl. 428—172 **6 Claims**



1. An areal flexible stratified body for treating a liquid or gaseous medium coming into contact with the stratified body, comprising:

a substratum layer comprising a flexible, passive needle-punchable plastic foil-like structure;

a cover layer formed of a needle-punchable fibrous material and disposed upon the substratum layer;

at least one layer formed of fine grain or fibrous solid active particles enclosed between the substratum layer and cover layer;

said plastic substratum layer comprising said plastic foil-like structure possessing essentially cup-like protuberances filled with the active particles;

holding fibers emanating from the cover layer;

said holding fibers being anchored both at the substratum layer which essentially holds back the active particles and at the cover layer; and

said holding fibers constituting part of the cover layer and part of the length of such holding fibers being needled through the layer of active particles into the plastic substratum layer and being elastically retained thereat.

4,424,249

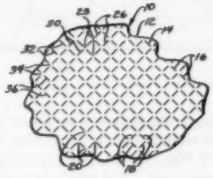
SPONGE FABRIC

Vytautas R. Rupinskas, Lombard, Ill., assignor to The Kendall Company, Boston, Mass.

Filed Jan. 27, 1983, Ser. No. 461,352

Int. Cl.³ B32B *3/00*

U.S. Cl. 428—195 **15 Claims**



1. A sponge fabric, comprising a nonwoven material in sheet form having a mass of randomly disposed fibers, said sheet having a bonding pattern in the form of a plurality of diamonds, with each of the diamonds in the pattern having a plurality of sides and being free of corners, and with each side of a specified diamond in the pattern being the side of an adjacent diamond.

4,424,250

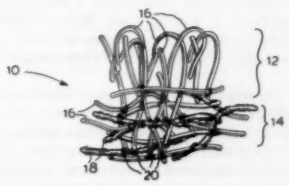
CARPET FACED TEXTILE PANEL

Ronald W. Adams, Auburn, Me., and Kathryn A. Middleton, Concord, N.C., assignors to Albany International Corp., Albany, N.Y.

Filed Apr. 21, 1982, Ser. No. 370,603

Int. Cl.³ B32B *3/00*

U.S. Cl. 428—198 **5 Claims**



1. A unitary, monolayered, nonwoven, carpet faced, decorative textile panel, which comprises;

a base of non-woven, first and second thermoplastic resin textile fibers, said first fibers having a lower temperature softening point than the second fibers;

a face of the first fibers;

portions of said base and face fibers being interengaged with each other, the interengagement being of a character associated with needled fibers;

the first fibers in the base having the character of heat-softened and re-hardened fibers, interlocked by rehardening while in contact with each other and with said second fibers; said second fibers being textile staple fibers lacking said character; and

the first fibers and portions of first fibers in the face being free of interlocking as described above.

4,424,251
THICK-FILM MULTI-LAYER WIRING BOARD

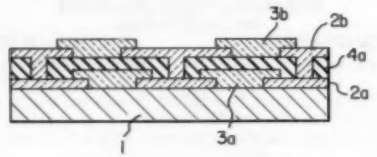
Nobuyuki Sugishita, Yokosuka, and Akira Ikegami, Yokohama, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 28, 1981, Ser. No. 287,683

Claims priority, application Japan, Jul. 28, 1980, 55-105728[U]

Int. Cl.³ H05K *3/46*

U.S. Cl. 428—209 **24 Claims**



1. In a thick-film multi-layer wiring board which comprises a substrate, a first resistor circuit comprising a thick film conductor and a thick film resistor, said first resistor circuit being provided on the substrate, a first insulating layer with through-holes being provided on the first resistor circuit, a second resistor circuit comprising a thick film conductor and a thick film resistor being provided on the first insulating layer and being connected to the first resistor circuit through said through-holes, an improvement which comprises forming the first insulating layer of crystallized glass of BaO-ZnO-MgO-Al_2O_3-TiO_2-SiO_2-B_2O_3 system, crystallized at 850° C. or above, which crystallized glass is sparingly reactive to the binder glass of the resistor circuits, whereby rate of change of resistivity of the thick film resistor is reduced.

4,424,252
CONFORMAL COATING SYSTEMS

Larry A. Nativi, Rocky Hill, Conn., assignor to Loctite Corporation, Newington, Conn.

Filed Nov. 12, 1982, Ser. No. 441,117

Int. Cl.³ B05D *3/06*

U.S. Cl. 428—209 **15 Claims**

1. A two-part coating composition, especially useful for conformal coating, comprising:

(1) a first part comprising at least one urethane-acrylate or urethane-methacrylate compound, a mono or polyfunctional acrylate or methacrylate reactive diluent and a polymerization initiator of the photoinitiator type; and

(2) a second part comprising a polyisocyanate containing adduct,

at least one component of said first part containing unreacted hydroxyl groups, said composition having an equivalent weight excess of isocyanate groups in said second part to the hydroxyl groups in said first part of at least 2:1.

15. A printed circuit board having one or more components mounted thereon, and covered at least in part with the cured coating composition of claim **1**.

4,424,253
LAMINATED SHEET STRUCTURES

Bernard F. Anderson, West Chester, Pa., assignor to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Continuation-in-part of Ser. No. 252,883, Apr. 10, 1981, abandoned. This application Feb. 25, 1982, Ser. No. 350,841

Int. Cl.³ B32B *27/08, 27/32*

U.S. Cl. 428—215 **18 Claims**

1. A laminate sheet structure comprising hot bonded alternate plies of a linear polymer of ethylene containing 0 to about 10 weight percent of a C_3-C_8 α-olefin comonomer and of a composition consisting essentially of a blend of about 75–93 weight % of a chlorinated hydrocarbon elastomer selected from the group consisting of chlorosulfonated polyethylene containing about 22–28% Cl and 0.4–1.2% S and chlorinated polyethylene containing about 22–28% Cl with 7–25 weight % of an ethylene/propylene copolymer elastomer the plies that consist essentially of the blend being at least about 0.25 mm thick.

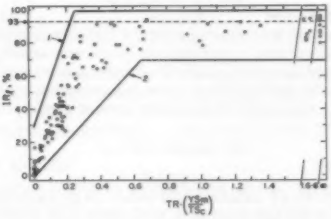
4,424,254
METAL-THERMOPLASTIC-METAL LAMINATES

Ross M. Hedrick, St. Louis; James C. Woodbrey, Chesterfield; James D. Gabbert, St. Louis, and Floyd B. Erickson, Webster Groves, all of Mo., assignors to Monsanto Company, St. Louis, Mo.

Continuation of Ser. No. 274,329, Jun. 16, 1981, abandoned, which is a continuation of Ser. No. 99,919, Dec. 14, 1979, abandoned, which is a continuation-in-part of Ser. No. 972,555, Dec. 22, 1978, abandoned. This application Jul. 12, 1982, Ser. No. 397,654

Int. Cl.³ B32B *7/02, 15/08*; B29C *19/00*

U.S. Cl. 428—215 **18 Claims**



1. A metal-thermoplastic-metal laminate having in combination:

an inelastic ratio less than about 93%;

a coefficient of linear thermal expansion less than about 63×10^{-6}° C.$^{-1}$;

a flexural stiffness of at least about 52.53×10^3 N/m; and

a maximum weight of no more than about 9.76 kg/m^2;

said laminate comprising:

a thermoplastic core layer, said core having a minimum thickness of about 0.0483 cm; and

a metal layer laminated on each side of the thermoplastic core layer, each metal layer having a minimum thickness of about 0.00127 cm; provided that aluminum is not the metal layer on both sides of the laminate when the thermoplastic core layer is high density polyethylene and further provided that when polypropylene is the thermoplastic core and aluminum is the metal layer laminated on each side of the core, the laminate has a maximum weight of about 5.37 kg/m^2;

wherein the thickness ratio of the sum of the metal layer-thicknesses to the thermoplastic core layer thickness is described by the region of numerical overlap of the parameter TR(YS_m/TS_c) as determined from the areas defined by the relationships of TR(YS_m/TS_c) to IR_l and $CLTE_l$, the lower boundary of said areas being defined by the equation of a straight line

$$y=mx+b$$

in which y is the y-axis parameters of IR_l and $CLTE_l$, x is the x-axis parameter of TR(YS_m/TS_c), m is the slope of the straight line, and b is the intercept on the y-axis with the proviso that:

when y is IR_l, m is 108 and b is zero (0) for values of x from zero (0) to 0.65, and m is zero (0) and b is 70 for values of x greater than 0.65; and

when y is $CLTE_l$, m is -3.6×10^{-4} and b is 45×10^{-6} for values of x from zero (0) to 0.1 and m is zero (0) and b is 9×10^{-6} for values of x greater than 0.1;

and the upper boundary of said areas being defined by the

equation of a straight line as defined hereinabove, with the proviso that:

when y is IR_f, m is 280 and b is 30 for values of x from zero (0) to 0.25, and m is zero (0) and b is 100 for values of x greater than 0.25; and when y is $CLTE_f$, m is -2.88×10^{-3} and b is 216×10^{-6} for values of x from zero (0) to 0.05, m is -1.29×10^{-4} and b is 78.5×10^{-6} for values of x from 0.05 to 0.26 and m is zero (0) and b is 45×10^{-6} for values of x greater than 0.26;

wherein:

IR_f is the inelastic ratio of the laminate as measured in flexure at 5% strain in the outer metal layers at the point of maximum deflection;

$CLTE_f$ is the coefficient of linear thermal expansion of the laminate;

TR is the thickness ratio of the sum of the metal layer-thicknesses to the thermoplastic core layer thickness;

YS_m is the thickness-weight-average tensile yield strength of the two metal layers at an offset of 5% elongation; and

TS_c is the tensile strength of the thermoplastic core layer.

4,424,255

BACKING SHEET FOR CUSHIONED FLOOR

Motofumi Nakamura, Tokyo; Koji Horimoto, and Motoyasu Yusawa, both of Yamaguchi, all of Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

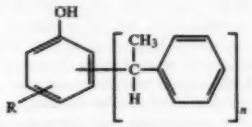
Filed Jul. 20, 1982, Ser. No. 400,065

Claims priority, application Japan, Jul. 31, 1981, 56-121277

Int. Cl.³ B32B *5/16*

U.S. Cl. 428—283 **6 Claims**

1. A backing sheet for a cushioned floor comprising a fibrous material of thermo-plastic resin, another fibrous material which does not melt at the melting point of the thermoplastic resin, and an inorganic filler, characterized in that the backing sheet contains 0.5 to 5%, based on the total weight of the fibrous materials, of at least one heat-stabilizer selected from the group consisting of the styrene-derived alkyl phenol type antioxidation agent of the formula (I):



(I)

wherein R stands for hydrogen atom or an alkyl group of C_mH_{2m+1}, m being an integer from 1 to 10; and n is an integer from 1 to 3; and the trialkyl-or triaryl phosphite antioxidation agent of the formula (II):

$$P(OR')_3 \qquad \text{(II)}$$

wherein R' stands for an alkyl group of C_xH_{2x+1}, x is an integer from 10 to 20, or an aryl group of

Z stands for hydrogen atom, or an alkyl group of C_yH_{2y+1}, y is an integer from 1 to 20.

4,424,256

RETORTABLE FOIL-BASED PACKAGING STRUCTURE

Ronald C. Christensen, Oshkosh; Roger P. Genske; Dennis E. Kester, both of Neenah, and William F. Ossian, Appleton, all of Wis., assignors to American Can Company, Greenwich, Conn.

Filed Aug. 6, 1982, Ser. No. 405,752

Int. Cl.³ C09J *7/02*; B32B *15/08*

U.S. Cl. 428—347 **14 Claims**

1. A laminated structure, wherein the layers are firmly adhered to each other in face to face contact, the structure comprising in order:

(a) a first layer of linear low density polyethylene;

(b) a second layer of a blend of 20% to 80% linear low density polyethylene and 80% to 20% propylene ethylene copolymer;

(c) a third layer of aluminum foil; and

(d) a primer coating on said third layer, said primer coating being juxtaposed between said second and third layers, said primer coating being an anhydride modified polypropylene composition.

4,424,257

SELF-CRIMPING MULTI-COMPONENT POLYAMIDE FILAMENT WHEREIN THE COMPONENTS CONTAIN DIFFERING AMOUNTS OF POLYOLEFIN

Hartwig C. Bach, Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 320,826, Nov. 12, 1981, abandoned. This application Jan. 24, 1983, Ser. No. 460,707

Int. Cl.³ D01D *5/12, 5/22*

U.S. Cl. 428—370 **25 Claims**

1. A process for producing a self-crimping, multi-component filament, comprising, co-extruding at a given speed (extrusion speed) at least two molten fiber-forming components in a side-by-side or asymmetric sheathcore configuration to form a molten multicomponent filament, wherein one of the components comprises a polyamide containing a minor amount of polyolefin dispersed therein and the other component(s) comprises (comprise) a polyamide of the same chemical structure containing a lesser amount of polyolefin, cooling the molten filament in a quenching zone to form a solid filament, attenuating and accelerating the filament from its point of formation by withdrawing the solidified filament from the quenching zone at a speed (spinning speed) which is greater than the extrusion speed, wherein the extrusion speed, amount of polyolefin in the components, the spinning speed and denier of the filament are correlated to provide an as-spun filament having a total bulk of at least 10% and wherein said polyolefin consists essentially of recurring units of the formula $—CH_2CRR'—$ where R and R' are atoms or radicals which do not render said polyamide incapable of forming fibers.

15. A helically crimped, multi-component filament having the components arranged in a side-by-side or asymmetric sheat-core configuration, characterized in that: the filament has a total bulk of at least 10%; one component comprises a polyamide containing dispersed therein a minor amount of at least one polyolefin consisting essentially of recurring units of the formula $—CH_2CRR'—$ where R and R' are atoms or radicals which do not render said polyamide incapable of forming fibers; and the other component(s) comprises(comprise) a polyamide of the same chemical structure containing a lesser amount of said polyolefin.

4,424,258

SELF-CRIMPING MULTI-COMPONENT POLYESTER FILAMENT WHEREIN THE COMPONENTS CONTAIN DIFFERING AMOUNTS OF POLYOLEFIN

Hartwig C. Bach, Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 320,827, Nov. 12, 1981, abandoned. This application Jan. 24, 1983, Ser. No. 460,708

Int. Cl.³ D01D 5/12, 5/22

U.S. Cl. 428—370 25 Claims

1. A process for producing a self-crimping, multi-component filament, comprising, co-extruding at a given speed (extrusion speed) at least two molten fiber-forming components in a side-by-side or asymmetric sheathcore configuration to form a molten multicomponent filament, wherein one of the components comprises a polyester containing a minor amount of polyolefin dispersed therein and the other component(s) comprises (comprise) a polyester of the same chemical structure containing a lesser amount of polyolefin, cooling the molten filament in a quenching zone to form a solid filament, attenuating and accelerating the filament from its point of formation by withdrawing the solidified filament from the quenching zone at a speed (spinning speed) which is greater than the extrusion speed, wherein the extrusion speed, amount of polyolefin in the components, the spinning speed and denier of the filament are correlated to provide an as-spun filament having a total bulk of at least 10% and wherein said polyolefin consists essentially of recurring units of the formula $—CH_2CRR'—$ where R and R' are atoms or radicals which do not render said polyester incapable of forming fibers.

15. A helically crimped, multi-component filament having the components arranged in a side-by-side or asymmetric sheat-core configuration, characterized in that: the filament has a total bulk of at least 10%; one component comprises a polyester containing dispersed therein a minor amount of at least one polyolefin consisting essentially of recurring units of the formula $—CH_2CRR'—$ where R and R' are atoms or radicals which do not render said polyester incapable of forming fibers; and the other component(s) comprises(comprise) a polyester of the same chemical structure containing a lesser amount of said polyolefin.

4,424,259

ARTICLES FROM ALKADIENE-VINYL ARENE COPOLYMERS HEAT-BONDED TO VINYL CHLORIDE POLYMERS

Terence C. Middlebrook, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Dec. 23, 1981, Ser. No. 334,020

Int. Cl.³ B32B 13/12, 9/04

U.S. Cl. 428—451 14 Claims

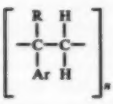
1. Shaped articles comprising

(a) a first section consisting essentially of a polymer or copolymer of vinyl chloride, and thermally bonded to said first section substantially without an adhesive,

(b) at least one second section formed of a composition comprising:

(1) a thermoplastic elastomeric copolymer of an alkadiene and a vinyl arene; and

(2) a poly(vinyl arene) resin having the structure



wherein R is an alkyl radical having from 1 to 4 carbon atoms, Ar is an aromatic radical which can be unsubstituted or hydrocarbyl substituted, having from 6 to about 18 carbons, and n is a whole number ranging from about 5 to 50.

4,424,260

PACKING MATERIAL FOR ASEPTIC PACKAGES

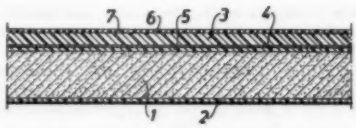
Herwig Pupp, Lund, Sweden, assignor to Tetra Pak International AB, Lund, Sweden

Filed Apr. 14, 1981, Ser. No. 254,086

Claims priority, application Sweden, Apr. 16, 1980, 8002845

Int. Cl.³ B32B 15/08, 27/08

U.S. Cl. 428—461 6 Claims



1. A packing material web for use in aseptic packages, comprising:

a base layer having first and second surfaces;

a first plastic layer on said first layer surface;

a gas barrier layer on said second layer surface;

a second plastic layer on said second layer surface with said gas barrier layer interposed therebetween, said second plastic layer being suitable for forming the inside surface of a packing container;

a third plastic layer superimposed on said second plastic layer, the interface between said third layer and said second layer being in a sterile condition, and wherein said third layer adheres, but does not fuse, to said second layer whereby said third layer is separable from said second layer upon formation of said packing container.

4,424,261

HYDROXYISOPROPYLMELAMINE MODIFIED MELAMINE-FORMALDEHYDE RESIN

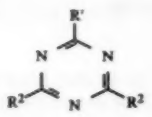
Ronald J. Keeling; Jin-Young K. Roe, and Henry C. Mollmann, all of Cincinnati, Ohio, assignors to American Cyanamid Company, Stamford, Conn.

Filed Sep. 23, 1982, Ser. No. 421,950

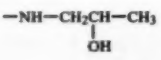
Int. Cl.³ B32B 27/04, 27/10; C08L 61/32

U.S. Cl. 428—530 3 Claims

1. A composition of matter comprising a blend of (1) (a) a hydroxyalkyl melamine or (b) a reaction product of a hydroxyalkyl melamine and formaldehyde and (2) a melamine/formaldehyde resin, the ratio of (a) to (2) ranging from about 1:1 to about 1:20, respectively, the ratio of (b) to (2) ranging from about 20:1 to about 1:20, respectively, the molar ratio of hydroxyalkylmelamine to formaldehyde in (b) ranging from about 1:0.05 to about 1:3, respectively, and the molar ratio of melamine to formaldehyde in (2) ranging from about 1:1 to about 1:3, respectively, said hydroxyalkyl melamine having the formula



wherein R' is a C_1–C_8 linear or branched chain alkyl group, a C_6–C_{10} aryl group or R^2 and R^2 is $—NH_2$, $—NH(CH_2)_xOH$ or



wherein x is 3–8, inclusive, and at least one of R^2 is a hydroxyalkylamine group.

4,424,262

ELECTROCHEMICAL STORAGE CELL

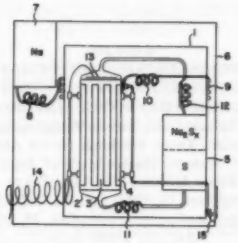
Ulrich von Alpen, Schlossborn, and Axel Krauth, Selb, both of Fed. Rep. of Germany, assignors to Varta Batterie Aktiengesellschaft, Hannover, Fed. Rep. of Germany

Filed Oct. 21, 1981, Ser. No. 313,628

Claims priority, application Fed. Rep. of Germany, Oct. 25, 1980, 3040394

Int. Cl.³ H01M *14/00*

U.S. Cl. 429—8 **2 Claims**



1. Electrochemical storage cell comprising a part made of a ceramic, ioncontaining solid electrolyte material, constituting ceramic plates which have been sintered together and form mutually parallel rectangular channels with thin partitioning walls and with an upper end and with an opposite lower end, with alternate parallel rectangular channels having openings for feeding liquid sodium at the upper end and closed at the opposite end forming anode spaces and containing liquid sodium and parallel rectangular channels adjacent the alternate channels open at the upper and lower ends forming cathode spaces and containing liquid sulfur and cell reaction products, said openings at the upper end of the anode spaces connected to a separate sodium supply tank disposed away from said openings, said cathode spaces connected to a sulfur and cell reaction products supply, and metallic curent collectors extending into the cathode spaces, wherein said sodium supply is in the sodium supply tank with a temperature level of about 100°–200° C., and wherein said sulfur and cell reaction products supply is a supply tank for sulfur and cell reaction products (Na_2S_x) with a temperature level of about 200°–300° C., and wherein said solid electrolyte part has a temperature level of about 250°–350° C., and that the different temperature levels are thermally uncoupled by delay lines in conduit means connecting the anode spaces to the sodium supply, and in conduit means connecting the cathode spaces to the sulfur and cell reaction products supply, wherein the cell is enclosed by a radiation shield as an outer heat container reflecting heat radiating from the cell, wherein within said outer radiation shield is disposed an inner radiation shield enclosing as inner heat container the solid electrolyte part and the supply tank for sulfur and cell reaction products (Na_2S_x), wherein the delay lines are part sections of the sodium supply conduit and of the supply conduit for sulfur, respectively leading from a lower to a next higher temperature level and, wherein a first conduit section of the sodium supply line in the form of a capillary tube is connected to the sodium supply tank, an intermediate conduit section of the sodium supply line is wound helically on the inner radiation shield, a third conduit section of the sodium supply line is connected to the anode space, with the first, intermediate and third conduit sections in a relatively cool zone, an intermediate temperature zone and a warm zone respectively.

2. Electrochemical storage cell comprising a liquid sodium anode and a liquid sulfur cathode, which are arranged as a plurality of connected, parallel anode spaces and a plurality of connected, cathode spaces in a body made of a ceramic, ion-conducting solid electrolyte material, said spaces having an upper end and an opposite lower end with the anode spaces open at the upper end, and closed at the opposite end, and with the cathode spaces open at the lower and the upper ends, said solid electrolyte body is a hollow block comprising profiled ceramic plates which are sinterend to each other, with the plates dividing the inner space of the block into a number of parallel channels with very thin intermediate walls, which parallel channels in alternating sequence form the cathode spaces and anode spaces, a sodium storage tank which is spatially separated from said body of solid electrolyte connected to the anode channels at their upper ends, a storage tank spatially separated from said body of solid electrolyte, for sulfur and reaction products of the cell, connected with said cathode channels at their upper and lower ends, and metallic conductors embedded in the cathode channels.

4,424,263

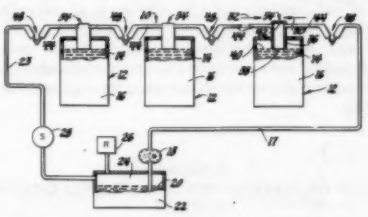
INTERCELL FLAME ARRESTOR FOR A BATTERY VENTING AND FILLING MANIFOLD

Gregory L. Howell, Anderson; Oscar H. Smith, Muncie, and Don G. Townsend, Anderson, all of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 24, 1981, Ser. No. 334,156

Int. Cl.³ H01M *2/12*

U.S. Cl. 429—88 **3 Claims**



1. In a battery comprising two or more electrochemical cells interconnected by venting means for venting flammable gas from the cells and for occasionally conveying liquid to the cells for replenishing electrolyte therein, the improvement comprising a flame arrestor incorporated into the venting means such that the gas flow path through the venting means is from a first portion through the flame arrestor to a second portion, said flame arrestor comprising

a liquid trap comprising first and second conduit arms and a fluid flow connection therebetween, said arms extending generally upward from the connection suitably to trap liquid within the conduit arms about the connection sufficient to temporarily block gas flow therethrough for suppressing flame in the gas, said first arm communicating with said first portion of said venting means to cause gas buildup within said portion to displace liquid into the second arm,

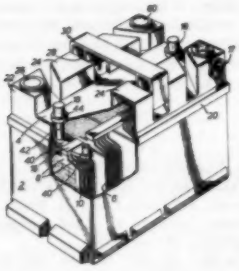
a chamber connected to the second liquid trap arm and communicating with said second venting means portion above said second conduit arm to permit gas flow through the chamber from the liquid trap to said second venting means portion, said chamber being suitably connected to said second arm for receiving liquid displaced from the liquid trap by gas buildup with said first portion of said venting means and for draining liquid into the liquid trap in the absence of said gas buildup, said chamber having a fluid flow path cross section larger than the connected conduit arm and a volume greater than said liquid trap to retain liquid within the chamber sufficient to block the trap while permitting gas flow therethrough for venting.

4,424,264

MULTICELL ELECTRIC STORAGE BATTERIES

Michael E. McGuire, Clifton, and Edwin Tatlock, Bolton, both of England, assignors to Chloride Group Public Limited Company, London, England

Filed Feb. 25, 1983, Ser. No. 469,695
Claims priority, application United Kingdom, Jun. 10, 1982, 8216841
Int. Cl.³ H01M 2/30
U.S. Cl. 429—179 4 Claims



1. A multicell electric storage battery including a rectangular section container, a plurality of cells extending along the length of said container and a lid common to all said cells, said lid having a peripheral side wall which is sealed to said container, said battery having two top terminals extending through said lid and situated on the central longitudinal axis of said lid and two side terminals extending through said side wall of said lid.

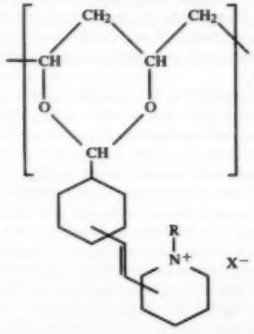
4,424,265

METHOD OF MAKING PICTURE TUBE FLUORESCENT SCREEN

Norio Koike, Fukaya, and Kunihiro Ikari, Yokosuka, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

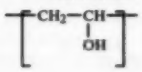
Filed Sep. 20, 1982, Ser. No. 419,628
Claims priority, application Japan, Dec. 11, 1981, 56-198668
Int. Cl.³ G03C 5/00
U.S. Cl. 430—28 3 Claims

1. A method of making a picture tube fluorescent screen, comprising the steps of applying, to the inner surface of a face plate panel of a picture tube, a composition essentially consisting of a light-sensitive resin at least having recurring units (1) and (2) represented by the following general formulas:



(1)

-continued



(2)

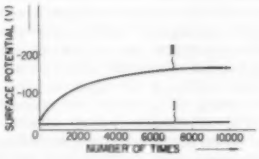
in which R designates a hydrogen atom, an alkyl group or a lower hydroxyalkyl group, and X^- designates an anion of a strong acid, and CaS-based phosphor particles, said light-sensitive resin and said CaS-based phosphor particles being dispersed in an aqueous medium; exposing the coat thus formed to light in a required pattern by use of a mask; developing and then baking the coat to form a fluorescent screen in a required pattern.

4,424,266

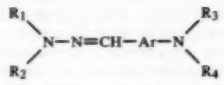
LAYERED ELECTROPHOTOGRAPHIC PHOTOSENSITIVE ELEMENT HAVING HYDRAZONE CHARGE TRANSPORT MATERIAL

Seiji Kurihara; Satoshi Goto; Tsuneo Wada; Akira Kinoshita, all of Hino; Yoshiaki Takei, Hachioji; Naoko Akashi, Hachioji, and Hiroyuki Nomori, Hachioji, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Sep. 23, 1981, Ser. No. 305,029
Claims priority, application Japan, Oct. 15, 1980, 55-142865
Int. Cl.³ G03G 5/14
U.S. Cl. 430—59 17 Claims



1. An electrophotographic photosensitive element having a conductive support provided thereon with a photosensitive layer comprising (i) a carrier-generating phase layer containing a carrier-generating material selected from the group consisting of perylene dyes, polycyclic quinones and azo dyes and (ii) a carrier-transporting phase layer containing a carrier-transporting material wherein said carrier-transporting phase comprises a hydrazone compound represented by the formula



wherein R_1, R_2, R_3 and R_4 each represent an aryl group which may have a substituent or substituents, and Ar represents an arylene group which may have a substituent or substituents.

4,424,267

ELECTROPHOTOGRAPHIC IMAGE HOLDING MEMBER

Hideyo Kondo, Toride, and Naoto Fujimura, Abiko, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 182,069, Aug. 28, 1980, abandoned, which is a continuation of Ser. No. 948,237, Oct. 3, 1978, abandoned. This application Mar. 26, 1982, Ser. No. 362,251
Claims priority, application Japan, Oct. 7, 1977, 52-120731; Oct. 7, 1977, 52-120732
Int. Cl.³ G03G 7/00
U.S. Cl. 430—66 10 Claims

1. An image-holding member for electrophotography for holding electrostatic images for both electrostatic and toner

images comprising: (a) a support, (b) an image-holding layer, and (c) a cured curable rubber layer of cyclized rubber spaced between (a) and (b) or as a separate layer in (b) or both.

4,424,268

PYRYLIUM- AND THIOPYRYLIUM-SENSITIZED LOW-PERSISTENCE PHOTOCONDUCTIVE COMPOSITIONS AND ELEMENTS

Martin A. Berwick, Kendall; Lawrence E. Contois, Webster, and George A. Reynolds, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 22, 1982, Ser. No. 443,787

Int. Cl.³ G03G *5/09*

U.S. Cl. 430—83 **17 Claims**

1. A protonic acid-free, low-persistence photoconductive composition comprising a organic photoconductor, and, as a sensitizer, a 4-tertiaryaminobenzo[b]pyrylium salt or a 4-tertiaryaminobenzo[b]thiopyrylium salt.

4,424,269

ELECTROPHOTOGRAPHIC CDS OR CDSSE WITH OZONE DETERIORATION INHIBITOR

Hideyuki Sasaki, Morioka; Toru Nakazawa, Kumatori; Yoshiaki Kato, Hirakata; Hideo Fukuda, Katano; Yasushi Kamezaki, Sakai, and Akira Fushida, Suita, all of Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Mar. 8, 1982, Ser. No. 356,215

Claims priority, application Japan, Mar. 10, 1981, 56-33136

Int. Cl.³ G03G *5/087*

U.S. Cl. 430—94 **6 Claims**

1. A photosensitive plate for electrophotography, which comprises a conductive substrate and a layer of a composition formed by dispersing a photoconductor in a binder resin, which is formed on the substrate, wherein said composition comprises (a) the resin binder which comprises an epoxy resin component and an amine type curing agent component, (b) 0.1 to 50 parts by weight, per 100 parts by weight of the epoxy resin component of an acid anhydride as the ozone deterioration preventing agent and (c) 20 to 500 parts by weight, per 100 parts by weight of the epoxy resin component of cadmium sulfide or cadmium sulfide selenide as the photoconductor.

4,424,270

LIGHT-SENSITIVE MIXTURE COMPRISING A NAPHTHOQUINONEDIAZIDESULFONIC ACID ESTER AND PROCESS FOR PREPARING SAID ESTER

Fritz Erdmann, and Ulrich Simon, both of Mainz, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Dec. 22, 1981, Ser. No. 333,338

Claims priority, application Fed. Rep. of Germany, Jan. 3, 1981, 3100077

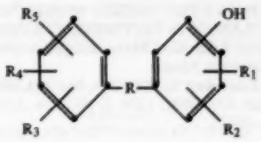
Int. Cl.³ G03C *1/54*; G03F *7/08*

U.S. Cl. 430—166 **21 Claims**

1. A light-sensitive mixture comprising:

(a) a water-insoluble binder soluble in aqueous alkaline solution, and

(b) an esterified reaction product of a naphthoquinonediazidesulfonyl halide and a mixture comprising a low molecular weight compound containing at least one phenolic hydroxyl group and a polymeric compound having recurring untis each of which contains at least one phenolic hydroxyl group, wherein said low molecular weight compound containing at least one phenolic hydroxyl group corresponds to the formula



wherein

R denotes a single bond or one of the groups of CO, S, O, SO_2 and CR_6R_7;

R_1, R_2, R_3, R_4 and R_5 represent hydrogen, halogen, hydroxyl groups, alkyl groups having 1 to 4 carbon atoms or alkoxy groups having 1 to 4 carbon atoms; and

R_6 and R_7 represent hydrogen or alkyl groups having 1 to 4 carbon atoms;

or wherein two of the radicals R_3, R_4 and R_5 and the radicals R_1 and R_2 in each case jointly form a fused aromatic ring; at least one of the radicals R_1, R_2, R_3, R_4, and R_5 representing a hydroxyl group.

4,424,271

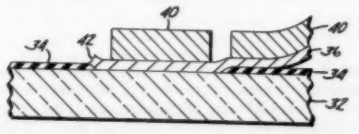
DEPOSITION PROCESS

Beat G. Keel, Prior Lake; Tuan P. Tran, Bloomington; Mara M. Koller, St. Paul; Larry D. Zimmerman, Apple Valley, and Patrick C. Darst, Cottage Grove, all of Minn., assignors to Magnetic Peripherals Inc., Minnneapolis, Minn.

Filed Sep. 15, 1982, Ser. No. 418,352

Int. Cl.³ G03C *5/00*

U.S. Cl. 430—315 **11 Claims**



1. A deposition process for producing a desired feature of deposition material comprising the steps of

a. forming a layer of adhesion inhibitor onto a portion of the surface of a substrate in a pattern whose inner edges are adjacent the bounds of the feature being produced, said adhesion inhibitor serving to inhibit the bonding to the substrate surface of deposition material to be subsequently deposited on said adhesion inhibitor, thereby permitting mechanical lift-off of a layer of said deposition material from said substrate surface;

b. depositing a first layer of deposition material onto the layer of adhesion inhibitor and the exposed portions of said substrate;

c. forming a pattern of photoresist on said first layer of deposition material adjacent said inner edges of said adhesion inhibitor layer, the inner edges of said pattern defining the bounds of said feature being produced;

d. depositing a second layer of deposition material onto the exposed portions of said first layer of deposition material;

e. removing said pattern of photoresist; and

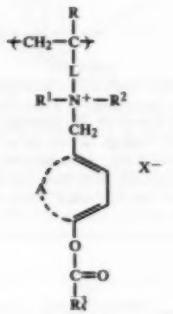
f. removing said adhesion inhibitor, that portion of said second layer of deposition material not part of the feature being produced, and that portion of said first layer of deposition material over said adhesion inhibitor, at least said portions of said first and second layers of deposition material being removed by mechanically lifting off and breaking or severing said first layer of deposition material adjacent said inner edges of said adhesion inhibitor.

4,424,272
TEMPORARY POLYMERIC MORDANTS AND ELEMENTS CONTAINING SAME

Lloyd D. Taylor, Lexington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Aug. 3, 1981, Ser. No. 289,289
Int. Cl.³ G03C *1/84, 1/40, 5/54, 1/72*
U.S. Cl. 430—507 **19 Claims**

9. A photosensitive element comprising a support carrying a photosensitive silver halide emulsion layer; a mordant layer comprising a polymeric mordant comprising recurring units of the formula



wherein R is hydrogen or lower alkyl; each of R^1 and R^2 is independently lower alkyl, cycloalkyl, substituted lower alkyl, aralkyl, or R^1 and R^2 taken together represent the atoms necessary to complete a saturated N-containing ring; L is a divalent linking group; A represents the atoms necessary to complete an arylene nucleus; R^3 is lower alkyl, aryl, aralkyl, alkoxy, or aryloxy; and X^- is an anion; and an organic dye capable of being mordanted by said polymer.

4,424,273
SUBBING POLYESTER SUPPORT BASES AND PHOTOGRAPHIC FILM COMPRISING SAID IMPROVED SUPPORT BASES

Simone Franco, and Alberto Valsecchi, both of Ferrania, Italy, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 17, 1982, Ser. No. 378,767
Claims priority, application Italy, May 26, 1981, 48536 A/81
Int. Cl.³ G03C *1/78, 1/96;* B32B *27/06, 27/36*
U.S. Cl. 430—529 **10 Claims**

1. A polyester support base coated with a first hydrophobic subbing layer and a second hydrophilic subbing layer for further coating with photographic layers, characterized by the fact that said second subbing layer is a hardened aqueous coating composition comprising (1) gelatin, (2) a vinyl addition polymer compound and (3) a low viscosity highly sulfonated water soluble polyacetal compound having at least 50% by weight of the polyacetal as sulfonated moieties, said compound derived from the reaction of an aldehyde sulfonic acid compound with a low viscosity polyvinyl alcohol compound having a viscosity of less than 1.5 dl/g, the relative quantities of said gelatin and vinyl addition polymer compound with respect to the polyacetal compound being such as to provide good adhesion characteristics without any significant loss in antistatic properties.

10. A light-sensitive photographic film comprising a subbed support base according to any preceding claim and at least one photographic layer coated directly onto said subbing layer.

4,424,274
PROCESS FOR PRODUCING CITRIC ACID FROM HYDROCARBONS BY FERMENTATION

Takao Matsumoto; Yoshiyuki Ichikawa, and Takeo Nagata, all of Yokohama, Japan, assignors to Showa Oil Company, Ltd., Tokyo, Japan

Filed May 6, 1982, Ser. No. 375,465
Claims priority, application Japan, Nov. 18, 1981, 56-183656
Int. Cl.³ C12P *7/48;* C12N *1/26, 1/28*
U.S. Cl. 435—144 **9 Claims**

1. A process for producing citric acid by fermentation which comprises:

culturing the hydrocarbon assimilable microorganisms selected from *Candida tropicalis, Candida lipolytica, Candida intermedia* and *Candida brumptii* and their mutants and their variants under aerobic conditions, while maintaining a concentration of dissolved oxygen in the culture medium of from about 15 to about 40 parts per million on a culture medium weight basis immediately after the logorithmic growth phase of the cultivation, at a temperature from about 25° C. to about 40° C. and at a pH from about 3 to about 10 in a culture medium containing hydrocarbons selected from olefinic and paraffinic hydrocarbons and their mixture, and recovering the produced citric acid from said culture mixture.

4,424,275
CONTINUOUS PROCESS FOR PRODUCING N-BUTANOL EMPLOYING ANAEROBIC FERMENTATION

Sidney Levy, 4433 Dawn Ave., LaVerne, Calif. 91750

Continuation-in-part of Ser. No. 76,250, Sep. 17, 1979, abandoned. This application Aug. 3, 1981, Ser. No. 289,156
Int. Cl.³ C12P *7/16*
U.S. Cl. 435—160 **10 Claims**

1. A continuous process for the production of n-butanol from the starting materials of an anaerobic fermentation process consisting essentially of:

(a) continuously contacting at least one carbohydrate-containing substrate with an n-butanol producing culture in water to effect the fermentation of said substrate and form a product mixture comprising n-butanol,

(b) continuously extracting said product mixture from said substrate, said culture and said water by forming a solution of said product mixture with an extraction solvent, wherein said solvent is at least one member selected from the group consisting of monofluorotrichloromethane and isopentane, while substantially avoiding the formation of a solution of said solvent with said substrate, said culture, and said water,

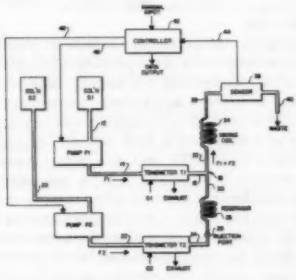
(c) continuously separating said extraction solvent from said product mixture by vaporizing substantially all of said solvent without substantial vaporization of said product mixture, and

(d) continuously condensing said vaporized solvent for reuse as an extraction solvent in step b.

4,424,276
METHOD AND APPARATUS FOR MEASURING THE GASEOUS CONTENT OF BLOOD

Justin S. Clark, and Ming-Cheng Yen, both of Salt Lake City, Utah, assignors to Intermountain Health Care, Salt Lake City, Utah

Filed Dec. 7, 1981, Ser. No. 327,756
Int. Cl.³ G01N *33/48*
U.S. Cl. 436—50 **27 Claims**



1. A method for determining the oxygen content of blood comprising the steps of:

(a) preparing a first saline solution having carbon monoxide gas absorbed therein to a point of equilibrium;

(b) injecting a sample of blood whose oxygen content is to be measured into a blood reservoir;

(c) mixing said first equilibrated saline solution with said blood sample by:

(1) causing said first saline solution to flow into a first inlet port of a mixing tee at a first fixed volumetric flow rate,

(2) causing said blood sample to flow into a second inlet port of said mixing tee at a second fixed volumetric flow rate, and

(3) directing an output port of said mixing tee to a mixing coil wherein said first saline solution and said blood sample are mixed together to form a blood/saline mixture;

(d) causing said blood/saline mixture to flow through an oxygen sensor at a third fixed volumetric flow rate, said third fixed flow rate being determined by the sum of said first and second fixed volumetric flow rates;

(e) recording the measured response of said oxygen sensor to the blood/saline mixture passed therethrough;

(f) preparing a second saline solution having oxygen absorbed therein to a point of equilibrium; ;p1 (g) mixing said first and second saline solutions together by:

(1) causing said first saline solution to flow into the first inlet port of said mixing tee at a first controlled volumetric flow rate,

(2) causing said second saline solution to flow into the second inlet port of said mixing tee at a second controlled volumetric flow rate, and

(3) directing the output port of said mixing tee to said mixing coil wherein said first and second saline solutions are mixed together to form a saline mixture;

(h) causing said saline mixture to flow through said oxygen sensor at the same third fixed volumetric flow rate as in step (d), said third fixed flow rate being determined by the sum of said first and second controlled volumetric flow rates;

(i) selectively adjusting said first and second controlled volumetric flow rates while maintaining said third fixed volumetric flow rate until the response of said oxygen sensor to said saline mixture flowing therethrough is within a predetermined tolerance of the response of said oxygen sensor measured and recorded in step (e);

(j) calculating the oxygen content of said saline mixture based upon known physical measurements and constants, including the ratio of said first and second controlled volumetric flow rates arrived at in step (i); and

(k) using the calculated oxygen content of said saline mixture as a relatable measure of the oxygen content of said blood sample.

4,424,277
METHOD FOR THE DETERMINATION OF NITRATE IONS

Detlef E. Bodart, Darmstadt, Fed. Rep. of Germany, assignor to Merck Patent Gesellschaft Mit Beschränkter Haftung, Darmstadt, Fed. Rep. of Germany

Filed Nov. 24, 1981, Ser. No. 324,369
Claims priority, application Fed. Rep. of Germany, Nov. 26, 1980, 3044433
Int. Cl.³ G01N *21/78, 31/22*
U.S. Cl. 436—110 **12 Claims**

1. A method for the quantitative colorimetric determination of nitrate ions, comprising admixing a sample with concentrated sulfuric acid and a color-generating reagent having the formula 4,4'-RO—C_6H_4—C_6H_4—OR, wherein R is substituted or unsubstituted C_{1-6} alkyl, said color-generating reagent being present in an amount effective to produce a quantitative coloration; and correlating the color of the resultant solution with a calibrated reference standard.

4,424,278
CANCER DETECTION PROCEDURE USING AN ACYL CARRIER PROTEIN

Edsel T. Bucovaz, and Walter D. Whybrew, both of Memphis, Tenn., assignors to Research Corporation, Lexington, N.Y.

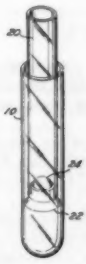
Filed Nov. 16, 1981, Ser. No. 321,782
Int. Cl.³ G01N *33/16*
U.S. Cl. 436—501 **22 Claims**

17. A kit for detection of cancer comprising in combination a vial containing a protein precipitating agent, a second vial containing exogenous protein and a third vial containing detectably labelled acyl carrier protein.

4,424,279
RAPID PLUNGER IMMUNOASSAY METHOD AND APPARATUS

Joseph W. Bohn; Peter A. Cohen, both of San Diego, and Bruce L. Zuraw, Del Mar, all of Calif., assignors to Quidel, La Jolla, Calif.

Filed Aug. 12, 1982, Ser. No. 407,454
Int. Cl.³ G01N *33/54, 33/58*
U.S. Cl. 436—534 **12 Claims**



1. An immunoassay apparatus comprising:

a cylindrical container tube having an open end and a closed end;

a plunger filter assembly received in the open end of the container tube and being slidable in the container tube; and

the plunger filter assembly comprising a cylindrical tube

open at both ends, a movable seal fixedly secured at the proximal end of the cylindrical tube, the distal end extending outwardly toward the open end of the container tube, the seal being movable with respect to the interior walls of the container tube and forming a substantially fluid tight movable seal between the proximal end of the plunger filter and the container tube, a dome-shaped filter inside and closing the proximal end of the plunger filter cylinder to the passage of material in and out of said proximal end except for fluids and particles which can pass through the filter, and immunologically reactive beads which, in use, bind selected immunologically active constituents, of the fluid to be assayed, the immunologically active beads having porous surfaces treated with an immunologically active constituent and being too large to pass through the filter.

4,424,280

CERAMIC FOAMS AND PROCESS OF PREPARING THE SAME

Henri-Bernard Malric, Cap Rouge, Canada, assignor to Centre de Recherche Industrielle du Quebec, Ste-Foy, Canada

Filed Oct. 5, 1981, Ser. No. 308,617
Claims priority, application Canada, May 27, 1981, 378467
Int. Cl.³ C04B *21/02, 43/02, 43/10*
U.S. Cl. 501—84 35 Claims

1. A process for preparing a clay foam in which a slip is prepared which is thereafter foamed, dried and baked, which comprises mechanically stirring the slip merely sufficiently to provide homogeneous conditions thereon, and controlling said stirring so as to prevent the introduction thereby of substantial quantities of ambient air into said slip, and independently of the introduction of any quantity of ambient air by said mechanical stirring, simultaneously introducing essentially within said slip in movement controlled quantities of a gas thereby ensuring the reproductiveness of a foam having predetermined physical properties, said slip being self flowing at the end of said process, said process being further characterized by drying the foam under conditions where temperature is heterogeneous around said foam and ventilation is practically prevented in the vicinity of said foam.

28. A clay foam characterized by the fact that it has been obtained by the process according to claim 1.

29. A clay foam according to claim 28, characterized by the fact that it has a density between about 0.3 and about 1.2.

4,424,281

REFRACTORY CEMENT

Cecil M. Jones, Worcester, Mass., assignor to Norton Company, Worcester, Mass.

Continuation-in-part of Ser. No. 390,566, Jun. 21, 1982, abandoned. This application Sep. 27, 1982, Ser. No. 423,581
Int. Cl.³ C04B *35/10, 35/52*
U.S. Cl. 501—89 17 Claims

1. A refractory cement mix adapted to be placed in a dry condition for forming linings for conduits for conveying molten iron and slag from a blast furnace by sintering the mix in situ in such conduit comprising a mixture of dense alumina grains of from 6 to 10 mesh in an amount by weight of 24%, dense alumina grains of from 12 to 16 mesh in an amount by weight of 25%, dense alumina grains 20 mesh and finer in an amount by weight of 35%, calcined alumina of from 200 mesh and finer in an amount by weight of 10%, silicon 90 mesh and finer in an amount by weight of 3%, and $(NaPO_3)_6$ 200 mesh and finer in an amount by weight of 3%.

4,424,282

PROCESS FOR THE CATALYTIC SYNTHESIS OF HYDROCARBONS, PARTICULARLY OF METHANE, FROM HYDROGEN AND CARBON MONOXIDE

Yves Chauvin, Le Pecq; Dominique Commereuc, Meudon; Andre Sugier, and Jean-Francois Le Page, both of Rueil Malmaison, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Feb. 16, 1982, Ser. No. 348,890
Claims priority, application France, Feb. 11, 1981, 81 02718
Int. Cl.³ C07C *1/04*
U.S. Cl. 518—700 10 Claims

1. A process for manufacturing methane by reacting hydrogen with carbon monoxide in the presence of a ruthenium-containing catalyst, comprising circulating hydrogen, carbon monoxide and an aqueous liquid phase consisting essentially of water through a fixed bed of a catalyst containing ruthenium on a carrier at a temperature from 200° to 320° C., at a total pressure from 1 to 15 MPa, and at a partial pressure of the $(CO+H_2)$ mixture from 0.1 to 2 MPa, said aqueous liquid phase being circulated in a non-trickling manner and at a flow rate to maintain the catalyst substantially immersed therein; separating the resultant gaseous phase from the resultant aqueous liquid phase; passing the aqueous liquid phase through a heat exchanger outside the reaction zone for cooling said aqueous phase; and recycling the cooled aqueous phase, at least the major part of the heat produced by the reaction being removed in said exchanger by means of the sensible heat of the circulating aqueous liquid phase.

4,424,283

CATALYST FOR SYNTHESIZING BISPHENOL AND METHOD FOR MAKING SAME

Gary R. Faler, and Geroge R. Loucks, both of Scotia, N.Y., assignors to General Electric Company, Schenectady, N.Y.

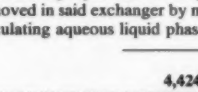
Continuation-in-part of Ser. No. 252,493, Apr. 8, 1981, abandoned, Division of Ser. No. 103,095, Dec. 13, 1979, Pat. No. 4,294,995. This application Jan. 25, 1982, Ser. No. 342,435
Int. Cl.³ B01J *20/26, 39/20*
U.S. Cl. 521—32 16 Claims

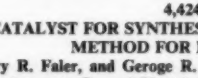
1. A method for making a leach resistant organoaminomercaptan substituted sulfonated aromatic organic polymer which comprises,

(1) effecting reaction between

(A) a halosulfonated aromatic organic polymer and

(B) an organoaminodisulfide selected from the class consisting of





and mixtures thereof, in the presence of base to produce a sulfonated aromatic organic polymer having organoaminodisulfide groups covalently bonded to sulfonyl radicals by nitrogen-sulfur linkages,

(2) effecting the reduction of the organoaminodisulfide groups on the sulfonated aromatic organic polymer of (1), and

(3) recovering sulfonated aromatic organic polymer from (2) having covalently bonded organoaminomercaptan groups attached sulfonyl radicals by nitrogen-sulfur linkages,

where R is a divalent $C_{(1-13)}$ organic radical, Y is selected from the class consisting of hydrogen, carboxy and nitrile, X is selected from the class consisting of halogen or a counter ion, R^1 is a $C_{(1-8)}$ alkyl radical and a is 0 or 1.

4,424,284
CATIONIC ADSORPTION AGENT

Jaroslav Haase, Riehen, and Roger Palmberg, Allschwil, both of Switzerland, assignors to Ciga-Geigy Corporation, Ardsley, N.Y.

Filed Oct. 19, 1981, Ser. No. 313,061

Claims priority, application Switzerland, Oct. 28, 1980, 8016/80

Int. Cl.³ C08G *12/22*

U.S. Cl. 521—36 **19 Claims**

1. A cationic adsorption agent which is obtained by reaction of

(a) an amino compound, or salt thereof, which contains at least one amino group and at least one free or methylolated carbamide or thiocarbamide group, or ether thereof, with

(b) an aminoplast precondensate which contains no amino groups, being a formaldehyde adduct or an etherified formaldehyde adduct of a urea, thiourea or amino-1,3,5-triazine compound.

17. A process for the preparation of a cationic adsorption agent, which process comprises reacting

(a) an amino compound, or salt thereof, which contains at least one amino group and at least one free or methylolated carbamide or thiocarbamide group, or ether thereof,

(b) an aminophast precondensate which contains no amino groups, being a formaldehyde adduct or an etherified formaldehyde adduct of a urea, thiourea or amino-1,3,5-triazine compound.

18. A process according to claim 17, wherein the reaction is conducted in the presence of a catalyst.

19. A process according to claim 18, wherein the catalyst is sulfamic acid.

4,424,285
PROCESS FOR FORMING FAST-COOL VINYL AROMATIC EXPANDABLE POLYMERS

Adolph V. DiGiulio, Wayne, Pa., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Division of Ser. No. 462,156, Jan. 31, 1983. This application May 16, 1983, Ser. No. 495,185

The portion of the term of this patent subsequent to Oct. 11, 2000, has been disclaimed.

Int. Cl.³ C08J *9/18*

U.S. Cl. 521—56 **5 Claims**

1. Expandable vinyl aromatic polymer particles consisting of vinyl aromatic polymer particles containing dispersed throughout (1) 0.5 to 4.0 percent by weight of a triblock copolymer rubber of 2–50 weight percent of polymerized vinyl aromatic monomer and 50–98 weight percent of polymerized conjugated diene and (2) a blowing agent; said expandable particles exhibiting fast-cooling properties in molded products produced therefrom.

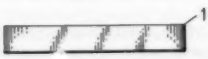
4,424,286
EXPANDED SHAPED ARTICLE COMPRISING A HEAT RESISTANT SYNTHETIC RESIN

Masao Nakagawa, Takasago, and Tatehiko Nishida, Himeji, both of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 219,344, Dec. 22, 1980, abandoned. This application Aug. 30, 1982, Ser. No. 412,597

Int. Cl.³ C08J *9/18, 9/20*

U.S. Cl. 521—58 **9 Claims**



1. An expanded shaped article obtained by pre-expanding expandable copolymer particles and subsequently heating the pre-expanded particles to form the expanded shaped article, wherein said expandable copolymer particles consist essentially of 3 to 15 weight percent volatile foaming agent, and a copolymer consisting essentially of 25 to 75 weight percent tertiary butyl styrene and 75 to 25 weight percent styrene alone or styrene in combination with other monomers copolymerizable therewith, wherein said copolymer is produced by suspension polymerization or emulsion polymerization, wherein one of said tertiary butyl styrene and said styrene alone or styrene in combination with said other monomers, is polymerized as an initial monomer, then, the other of said tertiary butyl styrene and said styrene alone or said styrene in combination with said other monomers, is added intermittently or at one time, when the conversion rate of the initial monomer is between 15 to 75%, and thereafter the polymerization being completed, and wherein the resulting article is substantially heat resistant in terms of dimensional stability.

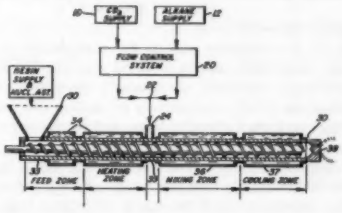
4,424,287
POLYMER FOAM PROCESS

D. Emil Johnson, Canandaigua; Charles M. Krutchen, Pittsford, and G. Vincent Sharps, Jr., Fairport, all of N.Y., assignors to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 158,187, Jun. 10, 1980, abandoned, and Ser. No. 205,353, Nov. 10, 1980, Pat. No. 4,344,710. This application Jun. 10, 1981, Ser. No. 272,155

Int. Cl.³ B29D *27/00*

U.S. Cl. 521—74 **28 Claims**



1. A method for the formation of a thermoplastic foam which comprises

introducing to a molten thermoplastic resin a blowing agent comprising at least one atmospheric gas and at least one volatile plasticizing blowing agent in amounts sufficient to plasticize said thermoplastic resin;

extruding said thermoplastic in the form of a foam; and

thermoforming said foam into articles; wherein the atmospheric gas is present in sufficient amounts to allow thermoforming immediately after the extrusion of the foam without substantial intermediate aging.

28. A thermoplastic foam article containing in its porous interstices at least one atmospheric gas and at least one volatile plasticizing organic blowing agent, said organic blowing agent being present in an amount sufficient to allow thermoforming of said foam article without substantial aging as compared to thermoformed thermoplastic foam which does not contain said atmospheric gas within its porous interstices; said foam article emitting a reduced quantity of said organic blowing agent to the atmosphere during the formation of said foam article and thereafter thermoforming thereof.

4,424,288

CARBODIIMIDE-MODIFIED POLYMETHYLENE POLYPHENYLENE POLYISOCYANATES FOR USE IN THE PREPARATION OF POLYISOCYANURATE-POLYURETHANE FOAMS

John T. Patton, Jr., Wyandotte; Peter T. Kan, Plymouth, and Thirumurti Narayan, Grosse Ile, all of Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Dec. 24, 1981, Ser. No. 334,158
Int. Cl.³ C08G 18/14, 18/78
U.S. Cl. 521—99 1 Claim

1. A polyisocyanurate-polyurethane foam prepared by reacting (a) a carbodiimide-modified polyisocyanate wherein said polyisocyanate is prepared by partially reacting a crude polymethylene polyphenylene polyisocyanate containing no more than 70 percent diphenylmethane diisocyanate an isomer mixture of 40 to 100 weight percent 4,4'-, 0 to 50 weight percent 2,4'- and 0 to 10 weight percent 2,2'-diphenylmethane diisocyanate having an average functionality of about 2.1 to 2.7, an NCO content of at least 31.5 weight percent in the presence of an effective amount of a carbodiimidization catalyst to a viscosity of about 3000 cps at 25° C. and an NCO content from 25.0 to 31.0 weight percent with (b) a polyol selected from the group consisting of diethylene glycol and ethylene oxide adducts of trimethylolpropane, trimethylolethane, glycerine, pentaerythritol, α-methylglucoside, sucrose, toluene diamine and methylene dianiline in the presence of a trimerization catalyst and a blowing agent.

4,424,289

CONTINUOUS PROCESS FOR THE MANUFACTURE OF QUICK-SETTING PHENOLIC FOAMS

Nicolas Meyer, Bully les Mines, and Gilbert Wollaert, Lens, both of France, assignors to Société Chimique des Charbonnages SA, Paris, France

Filed May 14, 1982, Ser. No. 378,369
Claims priority, application France, May 15, 1981, 81 09685
Int. Cl.³ C08J 9/14
U.S. Cl. 521—103 9 Claims

1. In a continuous process for manufacturing a phenolic foam, comprising mixing a liquid phenolic resol, a blowing agent and a hardener; continuously depositing the resultant mixture on a belt; continuously expanding and hardening the mixture to form a phenolic foam; and recovering the resultant foam,

the improvement wherein said blowing agent is an organic liquid having a boiling point of 20°–80° C.; and said hardener is a concentrated, substantially anhydrous boric anhydride solution comprising: (A) at least 5% by weight of boric anhydride; (B) an organic solvent, said solvent being a monoalcohol, a polyalcohol, a trialkylborate, a dialkyl acetal of formaldehyde or a mixture thereof; and (C) 5–70% by weight, based on the weight of hardener solution, of concentrated sulfuric acid, an aromatic sulfonic acid or a mixture thereof.

4,424,290

FILTRATE REDUCER ADDITIVE FOR SWELLING CLAY GROUTS AND CEMENT-SWELLING CLAY GROUTS

Jacky Rousset, Baneins, and Roger P. Chavrier, Marseilles, both of France, assignors to Societe Coatex, Paris, France

Filed Aug. 13, 1981, Ser. No. 292,599
Int. Cl.³ C04B 13/00, 43/00, 7/14
U.S. Cl. 524—5 14 Claims

1. An additive for swelling clay grouts and cement-swelling clay grouts that reduces the filtrate, lowers and stabilizes the viscosity, retards rigidification time, limits sweating and the sedimentation of the solid constituents, comprising an alkaline ethylenic acid polymer and/or copolymer with a molecular weight between 3000 and 20,000.

4,424,291

CORRUGATING ADHESIVE COMPOSITION AND PAPERBOARD PRODUCT PRODUCED THEREWITH

Craig H. Leake, Edison, and Michael A. Silano, Somerset, both of N.J., assignors to National Starch and Chemical Corporation, Bridgewater, N.J.

Continuation-in-part of Ser. No. 215,289, Dec. 11, 1980, which is a continuation of Ser. No. 96,935, Nov. 23, 1979, abandoned.
This application Aug. 10, 1981, Ser. No. 291,193
Int. Cl.³ C08L 3/02; B32B 3/28
U.S. Cl. 524—47 6 Claims

1. A corrugating adhesive composition consisting essentially of:

1. a carrier consisting essentially of:
   a. about 5–98%, by weight, on a solids basis, of a polymer which is substantially a polymer soluble in the adhesive medium, said polymer containing at least 10%, by weight, of carboxyl groups derived from a polymerizable ethylenically unsaturated mono- or polycarboxylic acid, or a mixture of said polymers, said polymer having a carrier wet tack of at least about 0.03 lb./in., and
   b. about 2–95%, by weight, of gelatinized starch;
2. ungelatinized starch; and
3. water; wherein said carrier, ungelatinized starch and water are present in amounts of 1–15%, 9–35% and 60–90%, by weight, respectively, based on the total adhesive composition.

4,424,292

INFRARED REFLECTING VINYL POLYMER COMPOSITIONS

Elvira B. Ravinovitch, South Euclid, and James W. Summers, Bay Village, both of Ohio, assignors to The B. F. Goodrich Company, Akron, Ohio

Continuation-in-part of Ser. No. 355,501, Mar. 8, 1982, abandoned. This application Oct. 27, 1982, Ser. No. 437,076
Int. Cl.³ C08K 3/22
U.S. Cl. 524—88 16 Claims

1. A composition adapted for use in the sunlight containing a homopolymer or copolymer of vinyl halide and vinylidene chloride polymerized with each other or each with one or more polymerizable olefinic monomers having at least one terminal

group, with or without a plasticizer for the polymer, a tin stabilizer, and color pigments, wherein the improvement consists essentially of the addition of an effective amount of an infrared reflecting black pigment of a mixture of chromic oxide and ferric oxide.

4,424,293

CROSSLINKABLE POLYPROPYLENE COMPOSITION

Akio Nojiri, Yokohama; Takashi Sawasaki, and Toshio Koreeda, both of Tokyo, all of Japan, assignors to The Furukawa Electric Co., Ltd., Tokyo, Japan

Division of Ser. No. 124,519, Feb. 25, 1980, Pat. No. 4,367,185.
This application Dec. 28, 1981, Ser. No. 335,105
Int. Cl.³ C08K 5/34
U.S. Cl. 524—101 10 Claims

1. A polypropylene composition which can be crosslinked upon irradiation with radiation, comprising component (a) 100 parts by weight of propylene homopolymer or copolymer, and cross-linking components (b) 0.5 to 4 parts by weight of triacrylate or trimethacrylate of aliphatic polyhydric alcohol, and (c) 0.01 to 5 parts by weight of a a phenolic compound containing at least two hydroxyl groups.

4,424,294

INJECTION MOLDABLE AMIDE-IMIDE POLYMERS AND COPOLYMERS CONTAINING TITANATES

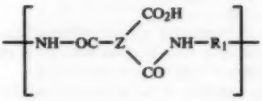
Wassily Poppe, Lombard, Ill., assignor to Standard Oil Company, (Indiana), Chicago, Ill.

Continuation-in-part of Ser. No. 283,438, Jul. 15, 1981. This application Mar. 31, 1983, Ser. No. 480,937

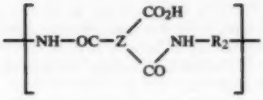
Int. Cl.³ C08K 5/52, 5/17, 5/09

U.S. Cl. 524—127 9 Claims

1. As a composition of matter, an injection moldable amide-imide copolymer containing about 0.5 to 1.5 percent by weight of titanate esters selected from the group consisting essentially of isopropyl tri(dioctylprophosphato)titanate, isopropyl tri(N-ethylamino-ethylamino)titanate, di(dioctylprophosphato)ethylene titanate, isopropyl tri(isostearoyl)titanate, titanium di(dioctylpyrophosphato)oxyacetate, isopropyl triacryl titanate and isopropyl tri(2-aminobenzoyl)titanate, the copolymer comprising units of:



and units of:



wherein the free carboxyl groups are ortho to one amide group, Z is a trivalent benzene ring or lower-alkyl-substituted trivalent benzene ring, R_1 and R_2 are the same or are different and are divalent aromatic hydrocarbon radicals of from 6 to about 10 carbon atoms or two divalent aromatic hydrocarbon radicals of from 6 to about 10 carbon atoms joined directly or by stable linkages selected from the group consisting of —O—, methylene, —CO—, —SO_2— and —S—radicals and wherein said R_1 and R_2 containing units run from about 10 mole percent R_1 containing unit and about 90 mole percent R_2 containing unit to about 90 mole percent R_1 containing unit to about 10 mole percent R_2 containing unit.

4,424,295

ELASTOMERIC SEALANT COMPOSITION

Joel V. Van Ornum, Kirkland, Wash., and Peter L. Stang, Port Tobacco, Md., assignors to Rockcor, Inc., Redmond, Wash.

Continuation of Ser. No. 821,360, Aug. 3, 1977, which is a division of Ser. No. 595,351, Jul. 14, 1975, Pat. No. 4,113,799. This application Apr. 5, 1982, Ser. No. 365,737

The portion of the term of this patent subsequent to Feb. 3, 1993, has been disclaimed.

Int. Cl.³ C08L 9/00, 45/02

U.S. Cl. 524—526 5 Claims

1. A sealant composition comprising a reinforced partially cross-linked matrix comprising a high average molecular weight butyl rubbers having a molecular weight in the range of approximately 100,000 to 400,000 and a low average molecular weight butyl rubber having a molecular weight in the range of approximately 10,000–40,000, in a ratio of high to low molecular weight butyl rubber of between about 20/80 and 60/40, in admixture with a tackifier present in an amount between about 55 and 70 weight % of the composition.

4,424,296

BLENDS OF LOW MOLECULAR WEIGHT HYDROXY-TERMINATED POLYESTERS AND COATINGS BASED ON THESE BLENDS

Joseph A. Antonelli, Riverton, N.J., assignor to E. I. Du Pont de Nemours & Co., Wilmington, Del.

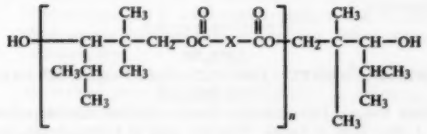
Continuation-in-part of Ser. No. 704,366, Jul. 12, 1976, abandoned. This application Sep. 29, 1978, Ser. No. 947,183

Int. Cl.³ C08L 67/06; C08K 3/20

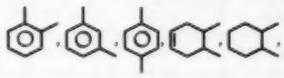
U.S. Cl. 524—539 18 Claims

1. A polyester blend consisting essentially of:

(A) 10–90 parts by weight, based on the weight of the blend, of a polyester of the following structure:

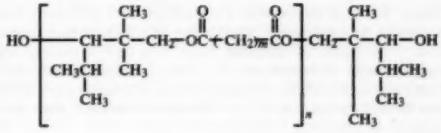


its isomer through the secondary hydroxyl group or mixtures thereof, wherein X=—CH=CH—,



and wherein n=0–10 and at least 70% by weight is n=3 or less provided that only a maximum of 25% by weight of n=0;

(B) 90–10 parts by weight, based on the weight of the blend, of a polyester of the following structure:



its isomer through the secondary hydroxyl group or mixtures thereof, where n=0–10 and at least 65% by weight is n=3 or less and wherein m=2–12; and

wherein polyesters (A) and (B) have a number average molcular weight not exceeding 1,000 determined by gel permeation chromatography using a polypropylene glycol standard.

4,424,297

COLLOIDAL SILESQUIOXANES

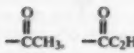
Alvin E. Bey, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Jul. 8, 1982, Ser. No. 396,532

Int. Cl.³ C08G 77/06

U.S. Cl. 524—714 16 Claims

1. A process for making a stable colloidal suspension of silsesquioxane with an average unit formula $RSiO_{3/2}$, where R is a monovalent hydrocarbon or substituted hydrocarbon radical containing 1 to 7 carbon atoms, which process comprises adding a silane having the formula $RSi(OR')_3$, wherein R′ is selected from the group consisting of hydrogen, alkyl groups containing 1 to 4 carbon atoms,



—CH_2CH_2OH, —$CH_2CH_2OCH_3$, and —$CH_2CH_2OC_2H_5$ groups, to a water and surfactant mixture, with agitation, where said water and surfactant mixture contains a sufficient amount of a pH modifying substance or substances to obtain a pH greater than or equal to 8 for said water and surfactant mixture prior to addition of said silane; where said surfactant is an organic carboxylic acid having greater than 8 carbon atoms or a water soluble salt of said carboxylic acid; and where said silsesquioxane has an average particle size of about 10 to 1000 angstroms.

4,424,298

PREPARATION OF CONCENTRATED POLYACRYLATE DISPERSIONS

Erich Penzel, Ludwigshafen; Guenter Eckert, Limburgerhof; Lothar Heider; Lothar Wuertele, both of Ludwigshafen, and Werner Schackert, Schifferstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Rheinland-Pfalz, Fed. Rep. of Germany

Filed Apr. 28, 1982, Ser. No. 372,799

Claims priority, application Fed. Rep. of Germany, May 20, 1981, 3119967

Int. Cl.³ C08K *5/01*

U.S. Cl. 524—747 **2 Claims**

1. A process for the preparation of a concentrated polyacrylate dispersion consisting of polymerization of 65–97 percent by weight of acrylic or methacrylic acid esters of alkanols of 1 to 8 carbon atoms, 0.3–10 percent by weight of α,β-monoolefinically unsaturated monocarboxylic and/or dicarboxylic acids of 3 to 5 carbon atoms and/or their amides and 0–25 percent by weight of monomers from the group consisting of styrene, acrylonitrile, vinyl acetate and vinyl chloride, in aqueous emulsion at pH 2–6 in the presence of 0.01–5.0 percent by weight, based on monomers, of the sulfuric acid half-ester of an adduct of an alkylphenol, alkyl being of 8 to 9 carbon atoms, with 5–50 moles of ethylene oxide and 0.01–1 percent by weight, based on monomers, of a dialkyl sulfosuccinate, alkyl being of 6 to 18 carbon atoms, and conventional water-soluble free radical initiators at 30°–95° C., by the emulsion feed process.

4,424,299

PROCESS FOR MANUFACTURING UNSATURATED POLYESTER RESINS WITH REDUCED VOLATILIZATION OF MONOMER

Piotr A. Penczek; Zofia Klosowska-Wolkowicz; Ewa J. Kicko-Walczak, all of Warsaw, and Andrzej Kopec, Wolomin, all of Poland, assignors to Instytut Chemii Przemyslowej, Warsaw, Poland

Continuation of Ser. No. 155,010, May 30, 1980, abandoned. This application Apr. 5, 1983, Ser. No. 480,378

Claims priority, application Poland, Jun. 1, 1979, 216027; Feb. 11, 1980, 221931

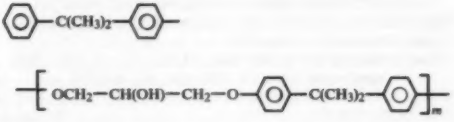
Int. Cl.³ C08G *63/76*; **C08L** *63/10, 67/06*

U.S. Cl. 525—31 **2 Claims**

1. A method for the manufacture of unsaturated polyester resins exhibiting reduced volatilization of its monomer, which comprises the steps of disolving in 100 parts of the unsaturated styrene-containing polyester resin mix and its precursors, from 0.005 to 5 parts of a monomer volatilization suppressing additive according to the formula:

$$(R—COOCH_2—CH(OH)—CH_2O)_2A$$

where R is selected from the group consisting of alkyl, alkenyl, alkadienyl, hydroxyalkyl and hydroxyalkenyl of 12 to 22 carbon atoms and A has the formula:



where m is 0 to 4.

4,424,300

POWDERED PHENOL-FORMALDEHYDE RESIN

Otto G. Udvardy, West Hill; Patricia E. Titus, and Martin Navratil, both of Scarborough, all of Canada, assignors to Borden, Inc., Columbus, Ohio

Filed Sep. 29, 1982, Ser. No. 427,858

Claims priority, application Canada, Dec. 7, 1981, 391657

Int. Cl.³ C08L *61/10*

U.S. Cl. 525—501 **12 Claims**

1. Method of preparing a heat-softenable and fast-curing phenol-formaldehyde resin in particulate form suitable for use in the production of waferboard comprising:

(a) reacting together in an aqueous medium, phenol and formaldehyde, in a ratio of one mole of phenol to between 2.0 and 3.3 moles of formaldehyde in the presence of between 0.25 and 0.6 mole of an alkaline catalyst by heating the reactants with agitation at an elevated temperature, and continuing this reaction until a prepolymer of a resole resin having a viscosity of from 70–150 Centipoises at 80° C. is formed and cooling the prepolymer to from about 20° to 25° C.;

(b) reacting together in an aqueous medium, phenol and formaldehyde, in a ratio of one mole of phenol to between 0.7 and 0.9 mole of formaldehyde in the presence of an acidic catalyst at an elevated temperature to form a prepolymer of a novolac resin and then cooling the reaction mixture to from 65°–70° C.;

(c) mixing the phenol-formaldehyde resin prepolymer of (a) with the phenol-formaldehyde resin prepolymer of (b) to form a dark, homogeneous solution, the proportion, by volume, of prepolymer (a) and prepolymer (b) being from 40:60 to 60:40;

(d) cooling the mixture to from 20° to 25° C. and spray-drying the solution of phenol-formaldehyde resins thus provided through a pressure-nozzle into a heated gas and chilling the spray-dried, particulate form of the resulting resin to form a powdered resin that softens at from 85°–100° C. and has a hot plate cure of from 10–25 seconds at 150° C. platen temperature.

4,424,301

CONTINUOUS PROCESS AND DEVICE FOR THE MANUFACTURE OF A VINYL CHLORIDE POLYMER IN AQUEOUS SUSPENSION

Heinz Klippert; Eberhard Tzschoppe, both of Burgkirchen/Alz; Stratos Paschalis, Erftstadt-Liplar; Jürgen Weinlich, Eppstein/Taunus, and Manfred Engelmann, Burghausen/Salzach, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 30, 1981, Ser. No. 288,351

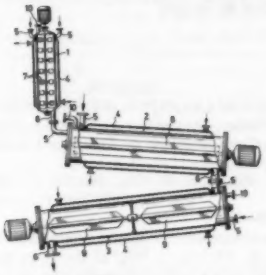
Claims priority, application Fed. Rep. of Germany, Aug. 7, 1980, 3029907

Int. Cl.³ C08F *2/18, 2/20*

U.S. Cl. 525—53 **5 Claims**

1. A continuous process for the manufacture of a vinyl chloride polymer by homopolymerization of vinyl chloride or by copolymerization or graft polymerization of vinyl chloride, in the presence of one or more monomers which can be copolymerized with vinyl chloride and/or of one or more polymers which can be graft polymerized with vinyl chloride, in an aqueous suspension, in the presence of one or more activators

which decompose to form free radicals, and of surface-active substances and further additives, in at least two reaction zones in which the polymerization mixture is kept sufficiently in motion for the polymer formed not to settle out, polymerization being carried out in the first reaction zone up to a conversion of not more than 10% by weight, relative to monomers employed, the mixture being cooled after leaving the last reaction zone, depressurized and freed from unreacted monomers



and, after removing the bulk of the aqueous liquor, processed to give a dry polymer powder, which comprises that all the reaction zones have an essentially cylindrical construction and each reaction zone has a length/diameter ratio of at least 4, the polymerization mixture in the first reaction zone is agitated by a multi-stage stirrer at a stirring power per unit volume of 0.1 to 5 kWm^{-3} and the polymerization mixture in the second reaction zone is exclusively in contact with inert, smooth, non-metallic surfaces.

4,424,302

METHOD OF FORMING POLYMER PARTICLES

Jacob Block, Rockville, Md., and Alan S. Michaels, San Francisco, Calif., assignors to W. R. Grace & Co., New York, N.Y.

Continuation-in-part of Ser. No. 141,852, Apr. 21, 1980, abandoned, which is a continuation-in-part of Ser. No. 121,226, Feb. 13, 1980, abandoned. This application Aug. 11, 1980, Ser. No. 176,803

Int. Cl.³ C08J *3/24*

U.S. Cl. 525—58 **11 Claims**

1. A process for forming cross-linked polymeric particles comprising

forming an aqueous salt solution;

introducing into said salt solution a water-soluble polyvinyl alcohol polymer, said solution containing salt of a composition and present in an amount sufficient to inhibit solubilization of the polymer in the aqueous salt solution;

introducing a polyfunctional reagent capable of reacting with at least two hydroxy groups of said polymer: said reagent selected from the group consisting of aldehyde containing compounds, di- and polycarboxylic acids, methylol and alkoxymethyl substituted ureas, or methylol and alkoxymethyl substituted melamines;

mixing said aqueous solution at a temperature and for a time sufficient to cause said polyfunctional reagent to react with said polymeric hydroxyl groups; and

recovering the polymeric product as a dry powder which is capable of forming discrete gelled particles when reconstituted with water.

4,424,303

COMPOSITION OF AN AROMATIC CARBONATE POLYMER, A STYRENE-BUTADIENE STYRENE RADIAL BLACK COPOLYMER AND AN ACRYLATE COPOLYMER

Ping Y. Liu, Naperville, Ill., assignor to General Electric Company, Mt. Vernon, Ind.

Continuation-in-part of Ser. No. 246,709, Mar. 23, 1981, abandoned. This application Feb. 25, 1982, Ser. No. 352,381

Int. Cl.³ C08L *53/02, 69/00*

U.S. Cl. 525—67 **10 Claims**

1. A composition which comprises in admixture

a. a major amount of an aromatic carbonate polymer,

b. an acrylate copolymer comprising a copolymper of an alkyl acrylate and an alkyl methacrylate, each of the said alkyl having independently one to five carbon atoms, inclusive, and

c. a styrene-butadiene-styrene radial block copolymer present in from about three to about twenty-five weight percent of the total composition of a+b+c.

4,424,304

THERMOPLASTIC MOLDING MATERIALS

Juergen Hambrecht, Heidelberg; Franz Brandstetter, Neustadt; Adolf Echte, Ludwigshafen; Karl Gerberding, Wachenheim, and Walter Heckmann, Weinheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed May 28, 1982, Ser. No. 383,142

Claims priority, application Fed. Rep. of Germany, Jun. 15, 1981, 3123716

Int. Cl.³ C08L *61/04*

U.S. Cl. 525—68 **1 Claim**

1. An impact resistant thermoplastic molding material comprising a mixture of impact resistant styrene polymer and polyphenylene ether wherein the styrene polymer is prepared by the polymerization of styrene monomer in the presence of a terpolymer selected from the group consisting of ethylene , propylene and 5-ethylidene-2-norbone; ethylene, propylene and 1,4-hexadiene, and ethylene, propylene and dicyclopentadiene, and wherein said styrene polymer consists of a flexible component of matrix grafted rubber particles with inclusions of polystyrene incorporated in a rigid matrix of polystyrene, said flexible component having an average particle diameter of 0.3 to 0.7 microns.

4,424,305

SURGICAL IMPLANTS FORMED OF POLYURETHANE DIACRYLATE COMPOSITIONS

Francis E. Gould, Princeton, and Christian W. Johnston, Neshanic Station, both of N.J., assignors to Tyndale Plains-Hunter, Ltd., Princeton, N.J.

Division of Ser. No. 206,407, Nov. 12, 1980, Pat. No. 4,359,558. This application Sep. 1, 1982, Ser. No. 413,942

Int. Cl.³ C08F *8/30;* **C08G** *18/10, 18/14;* **A61K** *31/74*

U.S. Cl. 525—127 **19 Claims**

1. An implant comprising a hydrophilic polyurethane diacrylate composition which will form a hydrogel upon immersion in water and is permeable to gases, ions and other low molecular weight species, which composition is dimensionally stable and exhibits memory, said polyurethane diacrylate composition comprising from about 90 to about 65 weight percent of a hydrophilic polyurethane resin characterized by terminal hydroxyl groups and from about 10 to about 35 weight percent of a diacrylate, said implant containing a medicament.

4,424,306

METHOD FOR MODIFYING CIS-1,4-POLYISOPRENE RUBBER

Shizuo Kitahara, Kawaguchi; Toshihiro Fujii, and Nagatoshi Sugi, both of Yokohama, all of Japan, assignors to Nippon Zeon Co., Ltd., Tokyo, Japan

Filed Jun. 16, 1982, Ser. No. 389,114

Claims priority, application Japan, Jun. 23, 1981, 56-97051

Int. Cl.³ C08L 75/00

U.S. Cl. 525—131 **18 Claims**

1. A method for modifying cis-1,4-polyisoprene rubber obtained by using a Ziegler-type catalyst, which comprises reacting a diisocyanate with a primary diamine in the presence of the cis-1,4-polyisoprene rubber.

4,424,307

OXYMETHYLENE POLYMER MODIFIED WITH 1,2-POLYBUTADIENE EXHIBITING ENHANCED TENSILE IMPACT PROPERTIES

Andrew H. DiEdwardo, Parsippany, and Rajal M. Kusumgar, Livingston, both of N.J., assignors to Celanese Corporation, New York, N.Y.

Filed Mar. 26, 1982, Ser. No. 362,360

Int. Cl.³ C08F 8/28; C08L 61/00

U.S. Cl. 525—154 **13 Claims**

1. A modified polyoxymethylene molding composition which is capable of being molded to form articles exhibiting enhanced tensile impact properties comprising an intimate blend of

(a) from about 99 to about 80% by weight, based on the total weight of the composition of an oxymethylene polymer; and

(b) from about 1 to about 20% by weight, based on the total weight of the composition, of a high molecular weight, low crystalline 1,2-polybutadiene comprising at least 90% 1,2-units.

4,424,308

PREPARATION OF MODIFIED AROMATIC-MOIETY-CONTAINING POLYMERS

Mark L. Shannon, Ponca City, Okla., assignor to Conoco Inc., Ponca City, Okla.

Filed Dec. 11, 1981, Ser. No. 329,790

Int. Cl.³ C08F 8/00

U.S. Cl. 525—196 **11 Claims**

1. A process for preparing aromatic moiety-containing polymers from homopolymers, copolymers or terpolymers of ω-halo-α-olefins, wherein said olefins contain from 3 to 24 carbon atoms, comprising contacting said homopolymers, copolymers or terpolymers with at least a stoichiometric amount, based on the halogen present in the ω-halo-α-olefins of an aromatic moiety-containing polymer, or combination at a temperature of from about 0° C. to about 250° C. in the presence of a Friedel-Crafts catalyst for a time from about 0.25 to about 10 hours aromatic moiety-containing monomers undergo polymerization to form aromatic moiety-containing

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4,424,309

POLYMER COMPOSITION COMPRISING CLPE, S/AN, PVC, AND RUBBER

Herman A. J. Schepers, Stein, Netherlands, assignor to Stamicarbon B.V., Geleen, Netherlands

Filed Aug. 7, 1981, Ser. No. 291,077

Claims priority, application Netherlands, Aug. 8, 1980, 8004522

Int. Cl.³ C08L 23/28, 23/16, 23/22, 27/06

U.S. Cl. 525—211 **10 Claims**

1. A compounded polymer composition composed of:

a. from 50 to 95 parts by weight of a mixture of

a.1. from 5 to 70 parts by weight of at least one polymer obtained by copolymerizing a mixture of

10–90% wt. styrene and/or styrene derivatives,

90–10% wt. acrylonitrile and/or methacrylonitrile, and

0–20% wt. of one or more other monomers, and

a.2. from 95 to 30% wt. of a vinylchloride polymer; together with

b. from 5 to 50 parts by weight of

b.1. a substantially saturated rubber, and

b.2. chlorinated polyethylene, and wherein the vinylchloride polymer content in the overall polymer composition is at least 25% by weight.

4,424,310

POLY(ALLYL)POLY(ALKENYLPHENOLS)

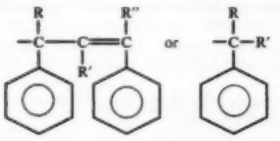
Robert E. Hefner, Jr., and Garnet E. McConchie, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Oct. 28, 1982, Ser. No. 437,100

Int. Cl.³ C08F 12/24

U.S. Cl. 526—277 **36 Claims**

1. A new composition of matter represented by Formulas I, II, III, IV, V, VI, VII, or VIII as shown in the specification wherein each A is a group represented by the formula —CH_2—CH=CH_2; each R, R′ and R″ is independently hydrogen or an alkyl group having from 1 to about 3 carbon atoms; each X is independently an alkyl group having from 1 to about 4 carbon atoms, chlorine or bromine with the proviso that at least one X on each ring is chlorine or bromine; each X′ is independently chlorine or bromine; Q is independently a group derived from any suitable polymerization initiator or terminator, —H,



and wherein each aromatic ring may contain any substituent group as those enumerated as substituent groups in Formulas I through VIII; n has a value from about 5 to about 100; n′ has a value of from about 1 to about 99; n″ has a value of from about 1 to about 99; x has a value from zero to 4; x′ has a value of from zero to 3; x″ has a value of zero to 2; y has a value of 1 or 2; z has a value from 0 to about 100; z′ has a value of from 0 to about 100 and z″ has a value from about 1 to about 100.

4,424,311

ANTITHROMBOGENIC BIOMEDICAL MATERIAL

Shoji Nagaoka; Hidefumi Takiuchi; Yuichi Mori, all of Kamakura, and Tetsuya Kikuchi, Yokohama, all of Japan, assignors to Toray Industries, Incorporated, Tokyo, Japan

Filed Jun. 30, 1982, Ser. No. 393,655

Claims priority, application Japan, Jul. 1, 1981, 56/101331

Int. Cl.³ C08F 259/04

U.S. Cl. 525—303 **9 Claims**

1. An antithrombogenic biomedical material comprising a graft copolymer obtained by graft copolymerization not less than 5% by weight, based on total weight of the monomers constituting the graft copolymer, of one or more polymerizable monomers (A) having a polyethylene oxide unit with a degree of polymerization not less than 5 and a polymerizable carbon-carbon double bond onto a polymer (B) obtained by polymerization of one or more monomers copolymerizable with the monomer or monomers A, wherein said polymer (B) is a polymer or copolymer containing not less than 10% by weight, in terms of monomer, of vinyl chloride units.

4,424,312

PREPARATION OF AMINO ACIDS IN HIGH OPTICAL YIELD VIA CATALYTIC HYDROGENATION

John K. Stille, Fort Collins, Colo., assignor to Polymer Sciences Corporation, New York, N.Y.

Filed Mar. 16, 1981, Ser. No. 243,747
Int. Cl.³ C08F 8/42, 220/34
U.S. Cl. 525—274 2 Claims

1. The method of forming a catalyst for the asymmetric hydrogenation of N-acyl-α-amino acids of both R and S configuration, respectively, in high optical yields which comprises the step of copolymerization of N-acryloyl-2(S),4(S)-4-diphenylphosphino-2-diphenyllphosphinomethylpyrrolidine or N-acryloyl-2(R),4(R)-4-diphenylphosphino-2-diphenyl-phosphinomethylpyrrolidine with hydrophilic vinyl comonomers and a divinyl monomer, in the presence of a free radical initiator to yield a copolymer, and as a further step exchanging rhodium(I) onto the copolymer at the phosphine sites, while maintaining an excess of phosphine sites over rhodium, and in the presence of triethylamine, said rhodium(I) being in the form of $[Rh(bially)Cl]_2$ or $[Rh(COD)Cl]_2$.

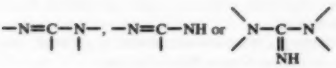
4,424,313

REACTIVE POLYMERS CONTAINING CARBOXYL GROUPS, A PROCESS FOR THE PRODUCTION THEREOF, AND THE USE THEREOF AS BINDER COMPONENTS FOR POWDER LACQUERS

Rolf-Volker Meyer; Hans-Joachim Kreuder, both of Krefeld, and Peter Höhlein, Kempen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 12, 1983, Ser. No. 461,738
Claims priority, application Fed. Rep. of Germany, Feb. 9, 1982, 3204333
Int. Cl.³ C08F 283/00; C08G 63/76; C08L 63/00, 67/00
U.S. Cl. 525—438 9 Claims

1. Reactive polymers containing carboxyl groups and having average molecular weights M_n of from 2,500 to 25,000, characterised in that from 0.1 to 25% of the original carboxyl groups are present as a salt of at least one organic nitrogen base having the structural feature:



4,424,314

CURABLE COATING COMPOSITION

Helmut Barzynski, Bad Duerkheim; Heinrich Hartmann, Limburgerhof; Dieter Lautenbach, Schifferstadt; Rolf Osterloh, Ludwigshafen; Lutz Goethlich, Ludwigshafen, and Guenter Heil, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Division of Ser. No. 819,816, Jul. 28, 1977, Pat. No. 4,205,139, which is a continuation of Ser. No. 603,445, Aug. 11, 1975, abandoned. This application Sep. 24, 1979, Ser. No. 77,816
Claims priority, application Fed. Rep. of Germany, Aug. 28, 1974, 2441148
Int. Cl.³ C08G 71/04
U.S. Cl. 525—454 5 Claims

1. A radiation-curable coating composition containing as a binder a mixture of 70 to 97% by weight of (A) mono-olefinically unsaturated esters of acrylic, methacrylic, maleic, fumaric or itaconic acid and a monohydric alcohol of 3 to 20 carbon atoms which esters may be partially replaced by one or more acrylic or methacrylic esters of a dihydric to tetrahydric alcohol of from 3 to 20 carbon atoms, as component A1 in admixture with component A2, said component A2 being an unsaturated polyurethane from hydroxyalkyl acrylates, diisocyanates and, optionally, polyetherpolyols or copolymerpolyols or polyamines; and (B) 30 to 3% by weight of one or more compounds copolymerizable with (A) but different therefrom, with a molecular weight of from 110 to 2,000, and carrying at least two N-vinyl groups and at least one carbonyl group, each nitrogen of the N-vinyl groups being bonded to a carbonyl group, said carbonyl group in turn being bonded to a nitrogen or carbon atom.

4,424,315

NAPHTHOL NOVOLAK RESIN BLEND

Paul Taylor, North Andover, and Michael Gulla, Sherborn, both of Mass., assignors to Shipley Company Inc., Newton, Mass.

Filed Sep. 20, 1982, Ser. No. 422,310
Int. Cl.³ C08L 61/10
U.S. Cl. 525—501 14 Claims

1. A thermoplastic resin blend comprising a mixture of a naphthol resin and a novolak resin, said naphthol resin comprising the acid catalyzed reaction product resulting from the condensation of an aldehyde and an aromatic alcohol selected from the group of a naphthol and mixtures of naphthol and a phenol where the aromatic alcohol is in molar excess of said aldehyde, said blend containing sufficient naphthol resin whereby the content of repeating units derived from naphthol varies between 1 and 99 mole percent of the total resin blend.

4,424,316

COMPOSITIONS FOR FORMING POLY(OXAZOLIDONE/URETHANE) THERMOSETS AND PRODUCTS THEREFROM

Anthony L. DiSalvo, Greenwich, Conn., and Arthur J. Yu, Harvard, Mass., assignors to Stauffer Chemical Company, Westport, Conn.

Filed Oct. 8, 1981, Ser. No. 309,732
Int. Cl.³ C08G 18/58, 18/34, 18/80, 59/42
U.S. Cl. 525—528 15 Claims

1. A process for the preparation of thermoset compositions containing oxazolidone linkages in the polymer backbone separated from one another by ester groups and urethane linkages in side chains to the polymer backbone which comprises reacting a polyisocyanate and a prepolymer, derived from reaction of a diepoxide and acid, containing at least one terminal epoxy group and at least one non-terminal, secondary hydroxy group, the molar amounts of epoxy and hydroxy in the prepolymer being equal, to thereby form the thermoset.

11. A thermoset composition containing oxazolidone and urethane linkages which is substantially free of isocyanurate linkages, said oxazolidone linkages being present in the polymer backbone and separated from one another by ester linkages derived from an acid, said urethane linkages being present in a side chain attached to the polymer backbone.

4,424,317

MANNICH CONDENSATION PRODUCT OF ETHYLENE/PROPYLENE/CARBONYL POLYMERS

Carl Serres, Naperville, Ill., and John G. Schaffhausen, Aurora, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Dec. 6, 1982, Ser. No. 447,446
Int. Cl.³ C08F 283/00
U.S. Cl. 525—539 17 Claims

1. A Mannich condensation product of an amorphous, oil soluble olefin/carbonyl polymer, amine and formaldehyde yielding reactant wherein the carbonyl groups are provided by at least one member selected from the group consisting of carbon monoxide in a concentration up to 1.0 parts by weight per 100 parts by weight olefin and vinyl alkyl ketone in a concentration up to 7.5 parts by weight per 100 parts by weight olefin.

4,424,318

CONTINUOUS PRODUCTION OF POLYMER BEADS OF CONTROLLED SIZE

Claude R. L. Vairetti, Ecole Boulloche, rue de chateau d'eau; Michel R. L. Desnoyers, 31, rue Emile DuFloye, Sinceny; Jack Carbonel, rue de Caumont, Ognes; Paul D. A. Grammont, 26, Place Saint-Momble, all of 02300 Chauny, France; Arkadyi B. Pachkov, Naoutchno-Issledovatelski Institut Plastmass, 35 Perovski Proezd, Moscow 111 112, U.S.S.R.; Vladimir A. Grigoriev, Naoutchno-Issledovatelski Institut Plastmass, 35 Perovski Proezd, Moscow, U.S.S.R., and Vladimir I. Firsov, Naoutchno-Issledovatelski Institut Plastmass, 35 Perovski Proezd, Moscow 111 112, U.S.S.R.

PCT No. PCT/EP81/00069, § 371 Date Sep. 18, 1981, § 102(e) Date Sep. 18, 1981, PCT Pub. No. WO81/03659, PCT Pub. Date Dec. 24, 1981

PCT Filed Jun. 10, 1981, Ser. No. 305,647

Claims priority, application France, Jun. 13, 1980, 80 13135

Int. Cl.³ C08F *2/20*

U.S. Cl. 526—88 15 Claims

1. A continuous process for the production of spherical polymer beads within a restricted size range, characterized by the steps of:

(a) continuously producing spherical monomer droplets within said size range by controlled coalescence of at least one monomer (M) finely dispersed in a laminar stream of a liquid suspension medium (L) having a higher density than said monomer and containing an ionizing agent (I), a pH adjusting agent (AD), and a surface protective agent (P) finely dispersed in said liquid medium in an amount selected in such a manner that the monomer finely dispersed in said laminar stream is continuously converted by coalescence into spherical droplets of increasing size until they have substantially taken up all of said dispersed protective agent (P) and thereby reach a limiting diameter within said restricted size range;

(b) continuously introducing the resulting monomer droplets at the top of a polymerizing column (12) while circulating a laminar stream of heated liquid polymerizing medium descending through the column at a controlled speed selected so as to balance the buoyant force acting on the monomer droplets, and to thereby maintain them in suspension in said laminar stream for a sufficient time for them to undergo polymerization until they are converted into hardened beads; and

(c) continuously discharging the hardened beads from the bottom of the column and subjecting them to further polymerization for a sufficient time to convert them to the desired polymer beads.

4,424,319

PROCESS FOR REDUCING THE CHANCES OF IGNITION AND EXPLOSION DUE TO THE DECOMPOSITON OF HIGH-PRESSURE INDUSTRIAL PROCESS GASES

Pierre Durand, Neuilly sur Seine, and Guy Jouffroy, Saint Arnoult par Caudedec en Caux, both of France, assignors to Societe Chimique des Charbonnages —CdF Chimie, Paris la Defense, France

Division of Ser. No. 143,635, Apr. 25, 1980, Pat. No. 4,339,412.

This application Jan. 18, 1982, Ser. No. 340,042

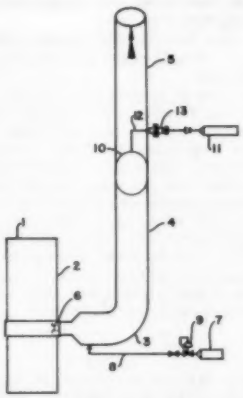
Claims priority, application France, Apr. 25, 1979, 79 10443

Int. Cl.³ C08F *2/34*

U.S. Cl. 526—88 7 Claims

1. A process for reducing the danger of ignition and explosion due to decomposition of an industrial process gas under high pressure, said process comprising:

(a) providing an evacuation system capable of rapidly venting decomposing process gases from a high-pressure vessel to the atmosphere; and



(b) maintaining, in at least a portion of said evacuation system between said vessel and the atmosphere, an inert gas.

4,424,320

POLYMERIZATION WITH A SILICA BASE CATALYST HAVING TITANIUM INCORPORATED THROUGH USE OF PEROXIDE

Max P. McDaniel, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 324,886, Nov. 25, 1981, Pat. No. 4,382,022.

This application Sep. 27, 1982, Ser. No. 424,802

Int. Cl.² C08F *4/02, 4/24*

U.S. Cl. 526—106 18 Claims

1. A polymerization process comprising:

contacting at least one mono-1-olefin having 2 to 8 carbon atoms per molecule in a reaction zone under polymerization conditions with a catalyst produced by a process comprising:

combining a titanium compound, a peroxide, and a mineral acid to form a first solution;

thereafter combining said first solution with a second solution comprising an alkali metal silicate;

allowing gellation to occur;

aging for a time of at least one hour;

washing to remove alkali metal ions;

removing water to produce a xerogel;

wherein said xerogel contains in addition a chromium compound;

activating said xerogel containing said chromium in an oxygen-containing atmosphere at an elevated temperature; and

recovering a polymer.

4,424,321

PROCESS FOR PRODUCING COPOLYMER OF ETHYLENE

Kazumi Tsubaki; Noriaki Koto, and Toyohiko Abe, all of Ichihara, Japan, assignors to Nissan Chemical Industries, Ltd., Tokyo, Japan

Filed Dec. 2, 1981, Ser. No. 326,926

Claims priority, application Japan, Dec. 27, 1980, 55-185452

Int. Cl.³ C08F *4/02, 210/16*

U.S. Cl. 526—128 9 Claims

1. A process for producing a copolymer of ethylene and from 0.5–10 mole % C_4–C_{10} α -olefin units, which comprises: forming a polymerization catalyst system by reacting a Grign-

ard reagent with a chain or cyclic hydropolysiloxane containing units of the formula:

$$R^1_aH_bSiO_{(4-a-b/2)}$$

wherein R^1 represents an alkyl, aryl, aryalkyl, alkoxy or aryloxy group;
a is 0, 1 or 2;
b is 1, 2 or 3; and
a+b is ≦3, thereby forming a reaction product (a);
reacting reaction product (a) with at least one compound having the formula:

$$R^2_nM^{(z)}X_{z-n}$$

wherein R^2 represents a C_1 to C_{12} hydrocarbon moiety;
M represents Al or Si;
z represents an atomic value of 3 or 4;
X represents a halogen atom;
n is 0, 1 . . . (z–1) in the presence of an aromatic hydrocarbon solvent at a temperature lower than 85° C., thereby forming a reaction product (b);
reacting the reaction product (b) with at least one titanium halide in the presence of an organic carboxylic acid ester (c), thereby obtaining a solid catalytic component (A), to which is added an organoaluminum compound (B); and then polymerizing ethylene and a C_4–C_{10} α-olefin in a presence of a catalytic amount of the polymerization catalyst system in an inert hydrocarbon solvent or in a liquid form of the C_4–C_{10} α-olefin in which ethylene is dissolved.

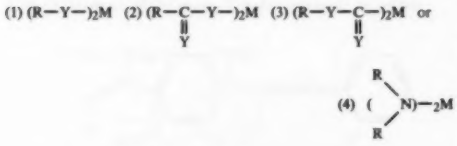
4,424,322

PROCESS FOR PRODUCING POLYMERS OR COPOLYMERS OF CONJUGATED DIENES

Yasuo Hattori; Takeshi Ikematu, both of Yokohama; Toshio Ibaragi, Kawasaki, and Makoto Honda, Tokyo, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Sep. 25, 1981, Ser. No. 305,685
Claims priority, application Japan, Sep. 13, 1978, 53-111632
Int. Cl.³ C08F 4/10
U.S. Cl. 526—175 **8 Claims**

1. A process for producing in high yield polymers having a high content of trans-1,4-linkage of a conjugated diene, copolymers of a conjugated diene and another conjugated diene, or copolymer of conjugated diene and a vinyl aromatic hydrocarbon, which comprises polymerizing the corresponding monomers in the presence of a complex initiator consisting of components (a) and (b) described below, or (a) and (b) together with one or more components selected from components (c) and (d); wherein (a) comprises a barium, strontium or calcium compound specified by the following formulae:



wherein R is a hydrocarbon radical selected from the group consisting of aliphatic alicyclic or aromatic hydrocarbons; Y is an oxygen atom or a sulfur atom; and M is barium, strontium or calcium; (b) comprises a reaction product of an organolithium compound and at least one compound of the group consisting of the organomagnesium and organoberyllium compound each reactant specified by the following formulae, respectively:

$$[R(Li)_n]R(Li)_n$$

wherein R is selected from the group consisting of aliphatic, alicyclic or aromatic hydrocarbon radicals; and n is an integer of from 1 to 4; and

$$R_2M' \quad (1)$$

and

$$RM'X \quad (2)$$

wherein R is selected from the group consisting of aliphatic, alicyclic or aromatic hydrocarbon radicals; X is a halogen atom; and M' is a magnesium atom or a beryllium atom;
(c) comprises an organolithium compound, an organomagnesium compound or an organoberyllium compound specified by the following formulae, respectively:

$$[R(Li)_n]R(Li)_n$$

wherein R is selected from the group consisting of aliphatic, alicyclic or aromatic hydrocarbon radicals and n is an integer of from 1 to 4; and

$$R_2M' \quad (1)$$

and

$$RM'X \quad (2)$$

wherein R is selected from the group consisting of aliphatic, alicyclic or aromatic hydrocarbon radicals; X is a halogen atom; and M' is a magnesium atom or a beryllium atom; and
(d) comprises an organoaluminum compound or an organozinc compound specified by the following formulae, respectively:

$$R_{3-m}AlX'_m \text{ or } R_{2-l}ZnX'_l \quad (1)$$

wherein R is selected from the group consisting of aliphatic, alicyclic or aromatic hydrocarbon radicals; X' is a hydrogen atom or a halogen atom; m is an integer of zero, one or 2; and l is an integer of zero or one.

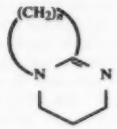
4,424,323

MOLECULAR WEIGHT DISTRIBUTION AND MICROSTRUCTURE MODIFIERS FOR ELASTOMERS

Delmar F. Lohr, Akron, Ohio, and Donald N. Schulz, Annandale, N.J., assignors to The Firestone Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 262,664, May 11, 1981. This application Jul. 9, 1982, Ser. No. 396,576
Int. Cl.³ C08F 4/48
U.S. Cl. 526—180 **8 Claims**

1. A process for producing an elastomer having a broad molecular weight distribution, comprising the steps of:
adding a molecular weight distribution modifier and an organo-lithium compound to an elastomer forming monomer, said monomer selected from the group consisting of (1) a conjugated diene having from 4 to 8 carbon atoms, (2) monomers of a diene having from 4 to 8 carbon atoms and a vinyl substituted aromatic compound having from 8 to 12 carbon atoms, (3) monomers of conjugated dienes having 4 to 8 carbon atoms with themselves so that interpolymers are formed, and (4) combinations thereof, said modifier compound being an unsaturated diazobicyclo compound having the formula



where n is 3 to 6, the amount of said modifier and said organo-lithium compound being sufficient to effect a molecular weight distribution upon polymerization, and

anionically polymerizing said monomers to produce an elastomer having a broad molecular weight distribution.

4,424,324

PROCESS FOR NONAQUEOUS DISPERSION POLYMERIZATION OF BUTADIENE

Morford C. Throckmorton, Akron, and Charles J. Suchma, North Royalton, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Dec. 9, 1982, Ser. No. 448,120

Int. Cl.³ C08F 2/08

U.S. Cl. 526—220 **18 Claims**

1. A process for the nonaqueous dispersion polymerization of butadiene monomer in a reaction mixture containing a liquid nonaqueous dispersion medium, a catalyst system, butadiene monomer, and at least one polymeric dispersing agent, the improvement which comprises carrying out the polymerization of the butadiene monomer in the presence of the reaction product of (1) an alkylbenzene sulfonic acid wherein said alkyl moiety contains from 6 to 20 carbon atoms and (2) a polyalkylene amine that contains from 6 to 20 carbon atoms and 2 to 8 amine moieties.

4,424,325

PHOTOSENSITIVE MATERIAL

Takahiro Tsunoda; Tsuguo Yamaoka, both of Funabashi, and Sinji Tamura, Saitu, all of Japan, assignors to Daikin Kogyo Co., Ltd., Osaka, Japan

Filed May 20, 1981, Ser. No. 265,571

Claims priority, application Japan, May 27, 1980, 55-71164

Int. Cl.³ C08F 214/18

U.S. Cl. 526—245 **3 Claims**

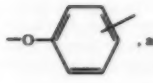
1. A copolymer comprising:

at most 75% by mole of a vinyl monomer copolymerizable with monomers (a) and (b), as defined below;

at least 20% by mole of a monomer (a) having a perfluoroalkyl group or perfluoroalkenyl group at one end of the monomer and an ethylenically unsaturated group selected from the group consisting of acryloyloxy, methacryloyloxy, acryloylamino, methacryloylamino, vinyl ether and α-methylvinyl, at the other end of the monomer; a bivalent group containing $-(CH_2)_n-$ linking the both end groups, monomer (a) is a compound having the following general formula (I):

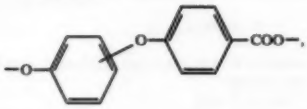
$$R_fB_m(CH_2)_n-X-CR=CH_2 \quad (I)$$

in which R_f is a perfluoroalkyl group or perfluoroalkenyl group having 7 to 21 carbon atoms; B is a bivalent group linking the R_f group and the $-(CH_2)_n-$ group selected from the group consisting of —CO—, $-SO_2-$, —O—, $-(CH_2)_3-O-$, —S—, $-(CH_2)_p-NR^1-$, $-CO-NR^1-$, $-SO_2-NR^1-$,



, and

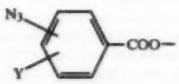
-continued



wherein R^1 is a hydrogen atom or an alkyl group having 1 to 5 carbon atoms, and p is an integer of 1 to 6; R is hydrogen or methyl group; X is a single bond or a bivalent group selected from the group consisting of —O—, —OCO—, —COO—, —NHCO— and —CO—; m is 0 or 1; and n is an integer of 1 to 10; and

at least 5% by mole of an ethylenically unsaturated monomer (b) having a photosensitive group, wherein the photosensitive group is a member selected from the group consisting of:

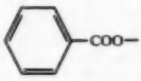
an azidobenzoyloxy group of the formula (1):



(1)

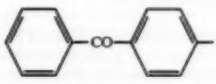
in which Y is hydrogen, an alkyl group having 1 to 5 carbon atoms, an alkoxyl group having 1 to 5 carbon atoms, nitro group, chlorine or bromine,

a cinnamic acid residue of the formula (2):



(2)

a benzoylphenyl group of the formula (3):

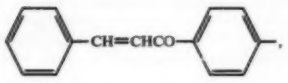


(3)

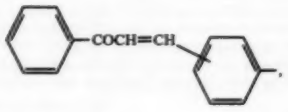
and a group containing an α,β-unsaturated ketone of the formula (4):

$$-COCH=CH-(4)$$

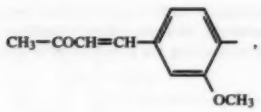
the photosensitive group containing the α,β-unsaturated ketone of formula (4) being selected from the group consisting of cinnamoylphenyl group of the formula:



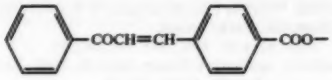
benzoylvinylphenyl group of the formula:



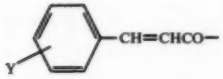
2'-methoxy-4'-(1-buten-3-onyl)-phenyl group of the formula:



benzoylvinylbenzoyloxy group of the formula:



and a cinnamoyl group of the general formula:



in which Y is as defined above.

4,424,326

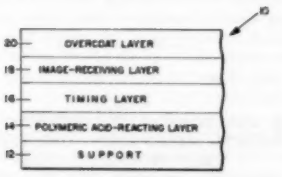
COPOLYMERIC MORDANTS

Edwin H. Land, Cambridge; Irena Y. Bronstein-Bonte, Newton, and Lloyd D. Taylor, Lexington, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

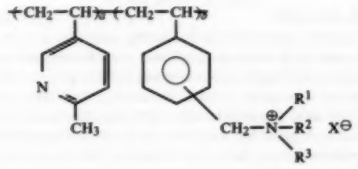
Division of Ser. No. 142,636, Apr. 22, 1980, Pat. No. 4,322,489. This application Mar. 24, 1982, Ser. No. 361,422

Int. Cl.³ C08F *226/06;* **G03C** *1/40*

U.S. Cl. 526—265 **9 Claims**



1. A copolymer containing recurring units according to the formula



wherein each of R^1, R^2 and R^3 is independently alkyl; substituted-alkyl; cycloalkyl; aryl; aralkyl; alkaryl; or at least two of R^1, R^2 and R^3, together with the quaternary nitrogen atom to which they are bonded complete a saturated or unsaturated, substituted or unsubstituted nitrogen-containing heterocyclic ring; X is an anion; and wherein the molar ratio of the respective recurring units represented by integers a and b is in the range of from about 0.1:1 to about 10:1.

4,424,327

CYANOACRYLATE ADHESIVE COMPOSITION

Karl Reich, Carlsberg; Heinz Tomaschek, Heidelberg, both of Fed. Rep. of Germany, and Georg Busch, Saphorin-sur-Morges, Switzerland, assignors to Teroson GmbH, Heidelberg, Germany

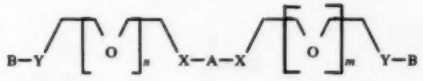
Filed Mar. 10, 1981, Ser. No. 242,510

Claims priority, application Austria, Mar. 10, 1980, 1320/80

Int. Cl.³ C08F *4/32, 22/32*

U.S. Cl. 526—297 **9 Claims**

1. An α-cyanoacrylate based adhesive composition having a catalytic amount of polymerization catalyst therein; said polymerization catalyst comprises at least one two-armed podand compound of the general formula:



in which X represents an oxygen atom, a sulphur atom or a N—CH_3 group; Y represents an oxygen atom, a sulphur atom, a N—CH_3 group or a —N—; each B represents a hydrocarbon group free of hydroxy or amino groups which is separately selected from a C_1–C_4 alkyl, an unsubstituted aryl, a C_1–C_4 substituted aryl, or a hetero atom stubstituted aryl; A represents a central group capable of linking each X to the other by one or two atoms; and n and m are each integers.

4,424,328

SILICONE-CONTAINING CONTACT LENS MATERIAL AND CONTACT LENSES MADE THEREOF

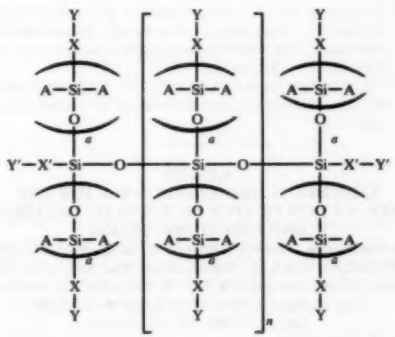
Edward J. Ellis, Georgetown, Mass., assignor to Polymer Technology Corporation, Wilmington, Mass.

Filed Dec. 4, 1981, Ser. No. 327,279

Int. Cl.³ C08F *20/10*

U.S. Cl. 526—279 **33 Claims**

11. A contact lens material comprising a polymeric material formed from free radical polymerization of a monomeric mixture comprising a significant amount of a multifunctional, unsaturated, organosiloxane having the formula:



wherein:

Y' is an unsaturated polymerizable group selected from the group consisting of vinyl, methacryloxy, acryloxy, methacrylamido, acrylamido, styryl and allyl,

X' is a divalent hydrocarbon having from 0 to 10 carbons,

Y is an unsaturated polymerizable group selected from the group consisting of vinyl, methacryloxy, acryloxy, methacrylamido, acrylamido, styryl, allyl and hydrogen,

X is a divalent hydrocarbon having from 1 to 10 carbon atoms, or phenylene,

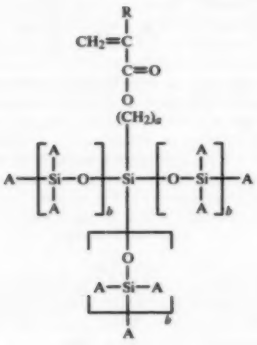
A is selected from the group consisting of straight chain

alkyl groups having 1 to 5 carbon atoms, branched chain, or cyclic alkyl groups having 3 to 5 carbon atoms, phenyl group and "Z" groups,

Z is a group selected from the following:
trimethyl siloxy,
pentamethyl disiloxanyl,
heptamethyl trisiloxanyl,
nonamethyl tetrasiloxanyl,
bis(trimethylsiloxy)methyl siloxanyl or
tris(trimethylsiloxy)siloxanyl

"a" is an integer from 0 to 10, the total of "a" values is at least 2,

"n" is an integer from 0 to about 10, and each of said X, X', Y, Y', a, A and Z groups each individually being the same or different and a monofunctional, unsaturated organosiloxane monomer having the formula:



wherein:

R is selected from the group consisting of methyl groups and hydrogen,

"a" is an integer from 1 to 4,

A is selected from the group consisting of straight chain alkyl groups having 1 to 5 carbon atoms, branched chain alkyl groups of from 3 to 5 carbon atoms, cyclohexyl group, phenyl group and Z groups,

Z is a group selected from trimethyl siloxy, pentamethyl disiloxanyl, heptamethyl trisiloxanyl, nonamethyl tetrasiloxanyl, bis(trimethylsiloxy)methyl siloxanyl or tris(-trimethylsiloxy)siloxanyl,

"b" is an integer from 0 to 10, each "b", "A" and Z may be the same or different, and the total of "b" values being at least 1.

4,424,329

EMBEDDING MEDIUM SUITABLE FOR THE PREPARATION OF THIN SECTIONS OF EMBEDDED BIOLOGICAL MATERIALS

Eric Carlemalm, Therwil, Switzerland, assignor to Chemische Werke Lowi G.m.b.H., Waldkraiburg, Fed. Rep. of Germany

Division of Ser. No. 242,025, Mar. 9, 1981, Pat. No. 4,368,312.
This application Nov. 4, 1982, Ser. No. 439,208
Int. Cl.³ C08F *220/20, 220/26*
U.S. Cl. 526—323.2 **7 Claims**

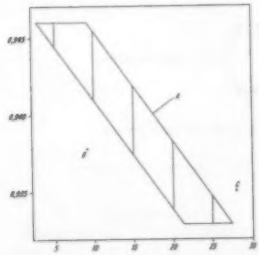
1. A four component package for carrying out the method of producing an essentially nonpolar embedding medium, which consists essentially of the step of admixing ethylmethacrylate, n-hexylmethacrylate, triethyleneglycoldimethacrylate and a free radical polymerization initiator at a ratio by weight of ethylmethacrylate:n-hexylmethacrylate of 3.3 to 5.4:1, a ratio by weight of the combined ethylmethacrylate and n-hexylmethacrylate:triethyleneglycoldimethyacrylate of 3.77 to 9.38:1, and the polymerization initiator being included in the mixture in a small amount of from about 0.1% to about 1% by weight based on the total weight of the resulting embedding medium, the purity of each of the components being at least 90% by weight, which comprises a first container containing ethylmethacrylate, a second container containing n-hexylmethacrylate, a third container containing triethyleneglycoldimethacrylate, and a fourth container containing the polymerization initiator.

4,424,330

ETHYLENE-PROPYLENE COPOLYMERS

Florent Raviola, Verquin, France, assignor to Societe Chimique des Charbonnages, Paris, France

Filed May 27, 1981, Ser. No. 267,592
Claims priority, application France, May 28, 1980, 80 11775
Int. Cl.³ C08F *210/16*
U.S. Cl. 526—348 **7 Claims**



1. An ethylene-propylene copolymer, having a density of between 0.933 and 0.946 g/cm³ and a melt index of between 2 and 10 dg/min, wherein said copolymer has from 3 to 27 alkyl groups per 1000 carbon atoms in the molecule and wherein its density ρ and its proportion m of alkyl groups in the molecule satisfy the relationship: $0.948 \leqq \rho + 0.71\ m \leqq 0.9525$.

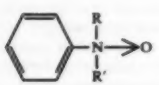
4,424,331

STABLE, ANAEROBICALLY-HARDENING ADHESIVES CONTAINING MIXED AMINE OXIDE/HN-ACIDIC COMPOUND INITIATORS

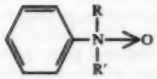
Werner Gruber, Korschenbroich, Fed. Rep. of Germany, assignor to Henkel Kommanditgesellschaft auf Aktien, Dusseldorf-Holthausen, Fed. Rep. of Germany

Filed Feb. 18, 1982, Ser. No. 349,837
Claims priority, application Fed. Rep. of Germany, Mar. 21, 1981, 3111132
Int. Cl.³ C08F *20/10*
U.S. Cl. 526—301 **1 Claim**

1. A stable, anaerobically-hardening adhesive system based on polymerizable methacrylates and acrylates which are free of peroxides and hydroperoxides and harden at an accelerated rate under anaerobic conditions having, for 100 parts by weight of said polymerizable methacrylates and acrylates, from 0.2 to 5 parts by weight of at least one organic amine oxide selected from the group consisting of (1) amine oxides having the grouping;



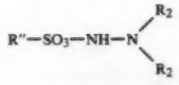
at least once and (2) amine oxides having the grouping:



in which the aromatic radical is condensed with one or more aromatic hydrocarbon radicals and (3) amine oxides of (1) and (2) above substituted by substituents selected from the grouping consisting of halogen, alkyl having from 1 to 12 carbon atoms and

all where R and R', respectively, represent alkyl having from 1 to 12 carbon atoms, and from 0.2 to 10 parts by weight of at least one NH-acidic compound, as an initiator, selected from the group consisting of

(1) organic sulfonic acid hydrazides having the formula:

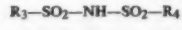


wherein R'' is a member selected from the group consisting of aromatic hydrocarbon groups, aromatic hydrocarbon groups substituted by halogen and/or lower alkyl, cycloalkyl having from 5 to 10 carbon atoms and alkyl having from 8 to 22 carbon atoms, and R_1 and R_2 are, respectively, hydrogen, lower alkyl, cycloalkyl having from 5 to 10 carbon or phenyl,

(2) carboxylic acid hydrazides wherein said carboxylic acids are selected from the group consisting of alkanoic acids having from 2 to 18 carbon atoms, alkanedioic acids having from 2 to 18 carbon atoms, cycloalkane carboxylic acids having from 6 to 11 carbon atoms, and benzene carboxylic acids,

(3) o-benzoic sulfimide,

(4) disulfonyl imides having the formula:



in which R_3 and R_4 are members selected from the groups consisting of alkyl having from 1 to 20 carbon atoms, cycloalkyl having from 5 to 10 carbon atoms, hydrocarbon aryl, and hydrocarbon aryl having substituents selected from the group consisting of chloro, methyl, methoxy and propoxy, and

(5) acyl cyanamides selected from the group consisting of alkanoyl cyanamides having from 2 to 18 carbon atoms in the alkanoyl, benzoyl cyanamide, naphthaloyl cyanamide, toluyl cyanamide, nicotinyl cyanamide, phenylacetyl cyanamide, dichlorophenylacetyl cyanamide bromoacetyl cyanamide, chloroacetyl cyanamide, p-methylphenylacetyl cyanamide, p-nitrophenylpropionyl cyanamide, 4-chloro-butyryl cyanamide and 4-bromo-butyryl cyanamide.

4,424,332

POLYMERIC METAL-AMINE COMPLEX COMPOUNDS, PROCESSES FOR THEIR PREPARATION AND USE

Peter Panster, Rodenbach, and Peter Kleinschmit, Hanau, both of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Aug. 2, 1982, Ser. No. 404,115

Claims priority, application Fed. Rep. of Germany, Aug. 13, 1981, 3131954

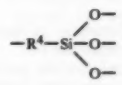
Int. Cl.³ C08G 77/22

U.S. Cl. 528—30 **10 Claims**

1. A polymeric complex organosiloxane amine of a member selected from the group consisting of molybdenum, tungsten, manganese, rhenium and a metal of the sub-groups VIII and I of the Periodic Table, wherein at least one amine of the formula

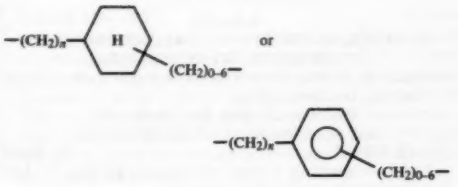
(1)

is bonded coordinately to each central metal atom, the metal:-nitrogen atomic ratio is from 1:1 to $1:10^6$, any coordination points at the metal atom which are still free are occupied by other electron pair donors, and the required charge compensation is effected by means of an inorganic or organic anion, and in the formula (1) R^1 and R^2 represent a group of the formula



(2)

R^4 denotes a linear or branched alkylene group having 1 to 10 C atoms or a cycloalkylene group having 5 to 8 C atoms, or represents the units:

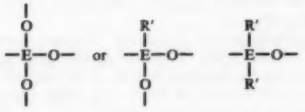


wherein

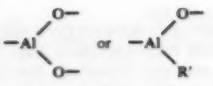
n is 1 to 6 methylene groups linked to a nitrogen atoms,

R^1 and R^2 can be identical or different,

and the free valences of the oxygen atoms are saturated either by silicon atoms of further groups of the formula (2) and/or by crosslinking bridge members



wherein E represents silicon, titanium or zirconium, or by the units:



wherein

R′ is a methyl or ethyl group and the ratio of the silicon atoms in (2) to the bridge atoms silicon, titanium, zirconium and aluminum can be from 1:0 to 1:10,

R^3 has the same meaning as R^1 and R^2, or represents hydrogen, a linear or branched alkyl group having 1 to 10 C atoms or a cycloalkyl group having 5 to 8 C atoms or the benzyl group.

4,424,333

MODIFIED POLYURETHANE LIQUID POLYMER COMPOSITIONS

James M. O'Connor, Clinton; Donald L. Lickei, Wallingford; Michael L. Rosin, Madison, all of Conn., assignor to Olin Corporation, New Haven, Conn.

Continuation-in-part of Ser. No. 203,212, Nov. 3, 1980, and Ser. No. 203,213, Nov. 3, 1980, abandoned. This application Sep. 29, 1981, Ser. No. 306,845

Int. Cl.³ C08G *18/10, 18/67*

U.S. Cl. 528—75 **17 Claims**

1. A polyurethane liquid polymer composition comprising a polyurethane oligomer and a heat activated free radical generating catalyst, said polyurethane oligomer having an equivalent ratio of NCO to OH from about 0.8/1 to about 2/1 and being prepared by reacting

(a) an organic polyisocyanate;

(b) a polyol having an average equivalent weight of about 75 to about 500 and an average functionality of at least about 3; and

(c) an isocyanate reactive group-containing unsaturated monomer selected from the group consisting of hydroxyethyl acrylate, hydroxypropyl acrylate, hydroxyethyl methacrylate, hydroxyethyl acrylamide, hydroxypropyl acrylamide, and mixtures thereof; and

wherein there is employed an equivalent ratio of said isocyanate reactive group-containing unsaturated monomer to said polyol in the range from about 0.6/1 to about 25/1.

4,424,334

HIGH SOLIDS URETHANE COATINGS FROM NEW TETRAHYDROXY OLIGOMERS

Mohinder S. Chattha, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Dec. 28, 1981, Ser. No. 334,799

Int. Cl.³ C08G *18/32, 18/42;* **C08L** *63/02*

U.S. Cl. 528—77 **15 Claims**

1. A thermosetting coating composition adapted for low temperature bake applications comprising:

(A) a tetrahydroxy oligomer having a number average molecular weight of between about 600–2000 and being the reaction product of:

(i) an ester containing pendant hydroxy and carboxyl functionality and being made by a reaction of reactants consisting essentially of:

(a) a C_3–C_{10} aliphatic branched diol, and

(b) an alkyl hexahydrophthalic anhydride, wherein (a) and (b) are combined in the reaction mixture in an amount sufficient to allow reaction in about a 1:1 molar ratio; and

(ii) a diepoxide having a number average molecular weight between about 130–1500, wherein (i) and (ii) are combined in the reaction mixture in an amount sufficient to allow reaction in about a 2:1 molar ratio;

(B) a polyisocyanate crosslinking agent;

(C) 0–50 weight percent based on the total weight of (A), (B),

(C) and (D) of a hydroxy functional additive having a number average molecular weight (M_n) between about 150–6000; and

(D) solvent,

said polyisocyanate crosslinking agent having two or more reactive isocyanate groups per molecule and being included in said composition in an amount sufficient to provide between about 0.50 and about 1.6 reactive isocyanate groups per hydroxyl group present in said composition either on said tetrahydroxy oligomer or as a hydroxyl group of said hydroxy functional additive.

4,424,335

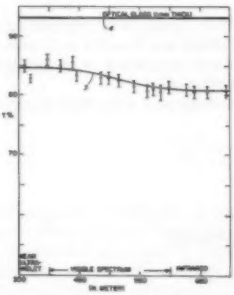
KERATOPROSTHETIC POLYURETHANE

Michael Szycher, Lynnfield, Mass., assignor to Thermo Electron Corporation, Waltham, Mass.

Division of Ser. No. 238,767, Feb. 27, 1981, which is a division of Ser. No. 120,345, Feb. 11, 1980, Pat. No. 4,285,073. This application Jul. 19, 1982, Ser. No. 399,881

Int. Cl.³ C08G *18/32*

U.S. Cl. 528—77 **2 Claims**



1. A polyurethane elastomer, said polyurethane elastomer being the reaction product of, 2.2 equivalent weights of 4,4′ dicyclohexylmethane diisocyanate, 1.0 equivalent weights of polytetramethylene ether glycol wherein the molecular weight of said polytetramethylene ether glycol is between the range of 1000–3000, and 1.0 equivalent weights of ethylene oxide-capped trimethylol propane.

4,424,336

MEAT-CURABLE MIXTURE, WHICH ARE STABLE ON STORAGE, OF EPOXIDE RESIN, 3-AMINOCROTONIC ACID DERIVATIVES AND MALEIMIDE COMPOUND

Theobald Haug, Frenkendorf, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

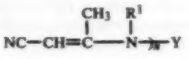
Division of Ser. No. 268,922, Jun. 1, 1981, Pat. No. 4,360,655, which is a division of Ser. No. 89,014, Oct. 29, 1979, Pat. No. 4,291,146. This application Sep. 16, 1982, Ser. No. 418,875

Claims priority, application Switzerland, Nov. 8, 1978, 11480/78

Int. Cl.³ C08G *59/52*

U.S. Cl. 528—117 **6 Claims**

1. A heat-curable mixture which is stable on storage, which contains (a) an epoxide compound with, on average, more than one epoxide group in the molecule, (b) a β-amino-crotonic acid derivative of the formulae I to X



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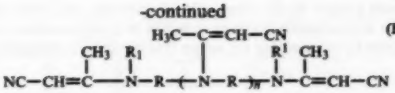

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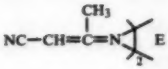

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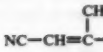

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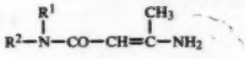

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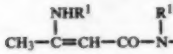

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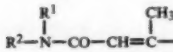

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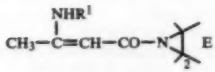

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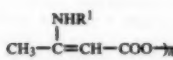
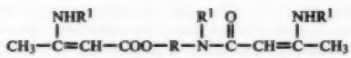


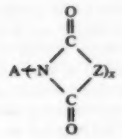
(IX)

or



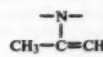
(X)

in which R^1 and R^2 independently of one another are each a hydrogen atom, alkyl having 1 to 6 C atoms, cycloalkyl having 5 or 6 C atoms or aryl having 6 to 10 C atoms, Y is a n-valent organic radical having 2 to 30 C atoms, R is an aromatic or aliphatic radical having not more than 30 C atoms, E, together with the two N atoms, is a heterocyclic, five-membered or six-membered ring and n is a number from 1 to 3, and (c) a maleimide of the formula XIII



(XIII)

in which A is a x-valent organic radical having 2 to 30 C atoms, Z is vinylene or methylvinylene and x is a number from 1 to 3; the curable mixture containing 2 to 8 epoxide equivalents per 1 equivalent of β-aminocrotonic acid derivative, containing the grouping



and a maximum of 70% of imide group equivalents, based on the sum of equivalents of β-aminocrotonic acid derivative and imide group.

4,424,337

POLYISOPHTHALATE AND COPOLYMERS THEREOF HAVING REDUCED CYCLIC DIMER CONTENT, AND A PROCESS FOR MAKING THE SAME

Richard R. Smith, Cuyahoga Falls, and David W. Sartorelli, Akron, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Sep. 7, 1982, Ser. No. 415,304
Int. Cl.³ C08G 63/22
U.S. Cl. 528—274 25 Claims

1. A process for preparing polyisophthalate or a copolymer thereof having low amount of ring dimer of ethylene isophthalate, comprising the steps of:

reacting an isophthalic compound with a glycol, said isophthalic compound selected from the group consisting of isophthalic acid, an alkyl ester of isophthalic acid having from 10 to 20 carbon atoms, and combinations thereof, said glycol being ethylene glycol and containing from 0 to 50 mole percent of one or more compounds selected from the group consisting of a glycol having from 3 to 12 carbon atoms, a glycol ether having from 4 to 12 carbon atoms, and combinations thereof;

said copolymer being the reaction product of said isophthalic compound, said glycol, and up to 50 mole percent of a dicarboxylic acid or ester thereof having from 4 to 40 carbon atoms based upon said isophthalic compound and said dicarboxylic acid or said ester thereof, said dicarboxylic acid or ester thereof being other than said isophthalic compound;

adding a protonic acid catalyst to said reaction; and

adding an intrinsic viscosity modifying agent to said reaction to produce said isophthalic polymer or said copolymer thereof, having reduced cyclic dimer content.

4,424,338

POLYMER TREATMENT

James W. Cleary, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Sep. 10, 1982, Ser. No. 416,755
Int. Cl.³ C08G 75/14
U.S. Cl. 528—388 11 Claims

1. A process for reducing the ash content and concurrently decreasing the melt flow of raw arylene sulfide polymers which comprises heating said arylene sulfide polymer in the presence of water, a finite, but small effective, amount sufficient to accelerate curing of the polymer but insufficient to cause polymer degradation of a mineral acid, and an oxygen-containing gas at an elevated temperature below the melting point of the polymer.

4,424,339

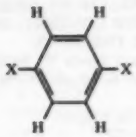
PROCESS FOR THE PREPARATION OF POLYARYLENE SULPHIDES

Karsten Idel, Krefeld; Edgar Ostlinning, Duesseldorf; Dieter Freitag, and Ludwig Bottenbruch, both of Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 13, 1982, Ser. No. 417,048
Claims priority, application Fed. Rep. of Germany, Sep. 25, 1981, 3138178; Feb. 19, 1982, 3205996
Int. Cl.³ C08G 75/14
U.S. Cl. 528—388 5 Claims

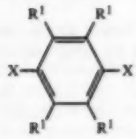
1. Process for the preparation of high molecular weight branched polyarylene sulphides, characterised in that

(a) dihalogenobenzenes, of which 50 to 100 mole % correspond to the formula I



(I)

and 0 to 50 mole % correspond to the formula II



(II)

wherein

X is fluorine, chlorine, bromine or iodine, and

R^1 is identical or different and is hydrogen, C_1–C_{20}-alkyl, C_5–C_{20}-cycloalkyl, C_6–C_{24}-aryl, C_7–C_{24}-alkaryl or C_7–C_{24}-aralkyl, or at least one pair of radicals R^1 can be linked to an aromatic or heterocyclic ring, and always at least one radical R^1 is different from hydrogen, and

(b) 0.1 to 2.4 mole %, relative to the dihalogenobenzenes, of a polyhalogenoaromatic of the formula III,

$$ArX_n \quad \text{(III)}$$

wherein

Ar is a trivalent or tetravalent aromatic or heterocyclic radical having 6–24 C atoms,

X has the same meaning as in formula I and II, and n=3 or 4, and

(c) an alkali metal sulphide are reacted in

(d) a polar solvent, the molar ratio of (a) to (c) being in the range from 0.85:1 to 1.15:1, and (c) to (d) in the range from 1:2 to 1:15, a polycondensation time of up to 10 hours and a polycondensation temperature from 160° to 300° C. being maintained, and the reaction being carried out in the presence of 2 to 30 mole %, relative to alkali metal sulphide, of an alkali metal sulphite and/or alkaline earth metal sulphite.

4,424,340

PROCESS FOR REMOVING RESIDUAL VINYL CHLORINE FROM THE POLYMER

Jean Golstein; Guillaume Coppens, and Jean-Claude Davoine, all of Brussels, Belgium, assignors to Solvay & Cie, Brussels, Belgium

Continuation of Ser. No. 260,600, May 6, 1981, abandoned, which is a continuation of Ser. No. 767,836, Feb. 11, 1977, abandoned, which is a continuation of Ser. No. 551,322, Feb. 20, 1975, abandoned, which is a continuation of Ser. No. 378,061, Jul. 11, 1973, abandoned. This application Aug. 27, 1982, Ser. No. 412,796

Claims priority, application Belgium, Dec. 29, 1972, 125979

Int. Cl.³ C08F 6/00, 6/28

U.S. Cl. 528—500 **7 Claims**

1. In a process for removing by steam stripping residual vinyl chloride and any other residual comonomers present in vinyl chloride polymer, which polymer is a vinyl chloride homopolymer or a copolymer of vinyl chloride containing less than 50% by weight of one or more copolymerizable comonomers, the improvement consisting of removing residual vinyl chloride and any other residual comonomers occluded in the vinyl chloride polymer by heating the vinyl chloride polymer to a temperature between its glass transition temperature and 180° C. by condensing steam onto the polymer, maintaining the vinyl chloride polymer at a temperature between its glass transition temperature and 180° C. sufficiently long to remove by steam stripping the greater part of the monomer or monomers present in the vinyl chloride polymer, and then cooling the vinyl chloride polymer to below its glass transition temperature by evaporating the water that condensed during heating.

4,424,341

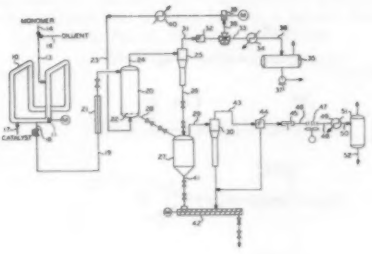
SEPARATION OF SOLID POLYMERS AND LIQUID DILUENT

Donald O. Hanson, and Fred T. Sherk, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Sep. 21, 1981, Ser. No. 304,235

Int. Cl.³ C08F 6/10

U.S. Cl. 528—501 **4 Claims**



1. A method for recovering polymer solids from an olefin polymerization effluent comprising a slurry of said solids in a liquid diluent comprising heating said effluent and vaporizing diluent in said heated effluent by exposing the heated effluent to a pressure drop in a first flash step, wherein the pressure in the first flash step and the temperature of said heated effluent are such that the major portion of the diluent will be vaporized and said vapor can be condensed without compression by heat exchange with a fluid having a temperature in the range of about 40° F. to about 130° F.; separating the diluent vapor and the polymer solids; condensing the vapors obtained in said first flash step without compression by heat exchange with a fluid having a temperature in the range of about 40° F. to about 130° F., subjecting the polymer solids recovered from said first flash step to a lower pressure flash step wherein diluent remaining with the polymer solids is vaporized, and separating the diluent vapor and polymer solids, and recycling at least part of the condensed diluent from said first flash step to the polymerization zone, wherein said first flash step is carried out in a flash vessel wherein heated recycled diluent vapor is used to heat the effluent and to maintain a fluidized bed of said polymer solids in said vessel and wherein the superficial velocity of the fluidizing heated recycled diluent vapor is in the range of about 0.4 to about 0.8 ft/sec and the fluidized bed height is no more than about two times the bed diameter.

4,424,342

ANTHRACYCLINE ANTIBIOTIC COMPOUNDS

Toshikazu Oki, Yokohama; Akihiro Yoshimoto, Fujisawa; Yasue Matsuzawa, Fujisawa; Tomoyuki Ishikura, Chigasaki; Hamao Umezawa, and Tomio Takeuchi, both of Tokyo, all of Japan, assignors to Sanraku-Ocean Co., Ltd., Tokyo, Japan

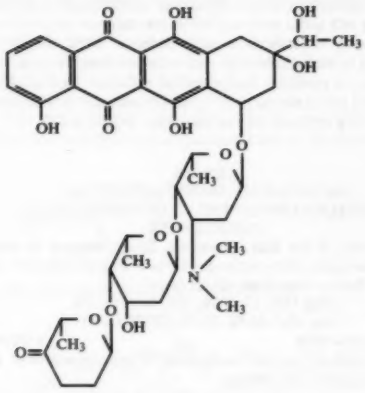
Filed Mar. 24, 1982, Ser. No. 361,175

Claims priority, application Japan, Apr. 3, 1981, 56-49400

Int. Cl.³ C07H 15/24; A61K 31/71; C12P 19/56

U.S. Cl. 536—6.4 **1 Claim**

1. A compound represented by the chemical structure



(I)

or its acid addition salts.

4,424,343

PREPARATION OF 1-N-[ω-AMINO-α-HYDROXYALKANOYL]KANAMYCIN POLYSILYLATES AND PRODUCTS

Martin J. Cron, Fayetteville; John G. Keil, Manlius; Jeng S. Lin, Clay; Mariano V. Ruggeri, Liverpool, and Derek Walker, Jamesville, all of N.Y., assignors to Bristol Myers Company, New York, N.Y.

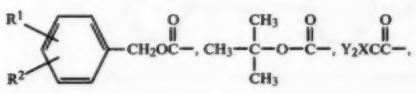
Continuation of Ser. No. 8,730, Feb. 2, 1979, abandoned, which is a continuation-in-part of Ser. No. 888,585, Mar. 20, 1978, abandoned, and Ser. No. 896,430, Apr. 14, 1978, abandoned, each is a continuation-in-part of Ser. No. 791,806, Apr. 28, 1977, abandoned. This application Nov. 3, 1980, Ser. No. 203,098

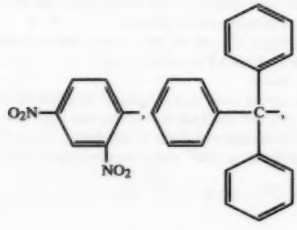
The portion of the term of this patent subsequent to Aug. 31, 1999, has been disclaimed.

Int. Cl.³ C07H *15/22*

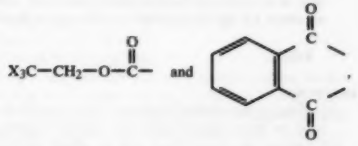
U.S. Cl. 536—13.8 **21 Claims**

14. Polysilylated kanamycin A or B or polysilylated kanamycin A or B containing a conventional non-silyl amino-blocking group on the 3-amino, 6′-amino or 3-amino and 6′-amino groups; wherein the silyl moieties on the polysilylated kanamycin A or B are selected from trimethylsilyl, triethylsilyl, tri-n-propylsilyl, methyldichlorosilyl, dimethylchlorosilyl, methyldiethylsilyl, dimethylethylsilyl, dimethyl-t-butylsilyl, phenyldimethylsilyl, benzylmethylethylsilyl, phenylmethylethylsilyl, triphenylsilyl, tri-o-tolylsilyl, tri-p-tolylsilyl and tri-p-dimethylaminophenylsilyl, and the amino-blocking groups are selected from those of the formulae





-continued



wherein R^1 and R^2 are alike or different and each is H, F, Cl, Br, NO_2, OH, (lower)alkyl or (lower)alkoxy, X is Cl, Br, F or I and Y is H, Cl, Br, F or I.

4,424,344

2-N-ACYLATED AND 2-N-ALKYLATED DERIVATIVES OF 4-O-SUBSTITUTED-2-DEOXYSTREPTAMINE AMINOGLYCOSIDES AND PROCESS

Herbert A. Kirst, and Brenda A. Truedell, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 189,440, Sep. 22, 1980, abandoned. This application Sep. 21, 1981, Ser. No. 304,292

Int. Cl.³ C07H *15/22*

U.S. Cl. 536—16.9 **37 Claims**

1. A process for acylating or alkylating the 2′-amino group of a 4-O-substituted 2-deoxystreptamine aminoglycoside, comprising the steps of:

(1) combining an aminoglycoside substrate selected from the group consisting of:

apramycin, and α or β-(C_1 to C_6 alkyl)aprosaminide, with about two to about six molar equivalents of a nickel salt of the formula:

$Ni(X)_2$

in water;

(2) diluting the above aqueous mixture with between about two to about ten volumes of a polar organic solvent;

(3) adding between about one to about two molar equivalents of an acylating agent or between about five to about twenty molar equivalents of an alkylating agent then carrying out the reaction at a temperature between about 0° C. to about 40° C. for a period between about 0.5 to about 24 hours for acylation or between about 15 hours to about 60 hours for alkylation, wherein:

X is C_1 to C_{10} carboxylate; wherein the acylating agent used is a reactive derivative of an acyl moiety selected from the group consisting of γ-protected amino-α-hydroxybutyryl, β-protected amino-α-hydroxypropionyl, N-protected glycyl, N-protected 3-hydroxypyrollidine-3-carbonyl, N-protected 3-hydroxyazetidine-3-carbonyl and N-protected 2-hydroxy-2-(azetidin-3-yl)acetyl; and

the alkylating agents used are C_2 to C_4 alkyl bromide, C_2 to C_4 alkyl bromide, C_2 to C_4 alkyl iodide, C_3 to C_5 allyl bromide, C_3 to C_5 allyl iodide, benzyl bromide, benzyl iodide, substituted benzyl bromide and substituted benzyl iodide.

4,424,345

1-N-ACYLATED AND 1-N-ALKYLATED DERIVATIVES OF 4-O-SUBSTITUTED-2-DEOXYSTREPTAMINE AMINOGLYCOSIDES AND PROCESS

Herbert A. Kirst, and Brenda A. Truedell, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 189,231, Sep. 22, 1980, abandoned. This application Sep. 21, 1981, Ser. No. 304,291

Int. Cl.³ C07H *15/22*

U.S. Cl. 536—16.9 **38 Claims**

1. A process for acylating or alkylating the 1-amino group of a 4-O-substituted 2-deoxystreptamine aminoglycoside, comprising the steps of:

(1) combining an aminoglycoside substrate selected from the group consisting of: apramycin, 3'-hydroxyapramycin, and α or β-(C_1 to C_6 alkyl)aprosaminide, with about two to about six molar equivalents of a zinc salt of the formula:

$Zn(X)_2$

in water;

(2) diluting the above aqueous mixture with between about two to about ten volumes of a polar organic solvent;

(3) adding between about one to about two molar equivalents of an acylating agent or between about five to about twenty molar equivalents of an alkylating agent then carrying out the reaction at a temperature between about 0° C. to about 40° C. for a period between about 0.5 to about 24 hours for acylation or between about 15 hours to about 60 hours for alkylation, wherein:

X is C_1 to C_{10} carboxylate; wherein the acylating agent used is a reactive derivative of an acyl moiety selected from the group consisting of γ-protected amino-α-hydroxybutyryl, β-protected amino-α-hydroxypropionyl, N-protected glycyl, N-protected 3-hydroxypyrrolidine-3-carbonyl, N-protected 3-hydroxyazetidine-3-carbonyl and N-protected 2-hydroxy-2-(azetidin-3-yl)acetyl; and

the alkylating agents used are C_2 to C_4 alkyl bromide, C_2 to C_4 alkyl bromide, C_2 to C_4 alkyl iodide, C_3 to C_5 allyl bromide, C_3 to C_5 allyl iodide, benzyl bromide, benzyl iodide, substituted benzyl bromide and substituted benzyl iodide.

4,424,346

DERIVATIVES OF CHITINS, CHITOSANS AND OTHER POLYSACCHARIDES

Laurance D. Hall, and Mansur Yalpani, both of Vancouver, Canada, assignors to Canadian Patents and Development Ltd., Ottawa, Canada

Filed Jun. 4, 1981, Ser. No. 270,414

Int. Cl.³ C08B *37/08;* **A61K** *31/70*

U.S. Cl. 536—20 **10 Claims**

1. Derivatives of chitin or chitosan wherein at least a part of the amine groups are covalently linked, through a =C— or —CH_2— linkage, and the substituents, including the amine N, have the structure:

(a) —N=CHR or —NHCH_2R

(b) —NHR′

(c) —NHR″ and

(d) —NH—CH_2CO_2H or —NH-glyceryl; respectively; where

R is an aromatic ring having at least one hydroxyl or carboxyl group, or a pyridine moiety,

R′ is an aldose or ketose residue attached via the aldehyde or keto carbon atoms, and

R″ is an organometallic aldehyde residue attached via the aldehyde carbon atom.

4,424,347

MODIFIED HYDROXYALKYL CELLULOSES AND METHOD OF PREPARATION

Wilfried Rähse, Düsseldorf; Norbert Kühne, Haan, and Willi Wüst, Ratingen-Hösel, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Dusseldorf-Holthausen, Fed. Rep. of Germany

Filed Jun. 10, 1982, Ser. No. 387,178

Claims priority, application Fed. Rep. of Germany, Dec. 28, 1981, 3151681

Int. Cl.³ B01F *17/56;* **C08B** *11/08, 11/193;* **E21B** *43/22*

U.S. Cl. 536—91 **3 Claims**

1. A method for the production of a modified hydroxyethyl cellulose having improved viscosity stability comprising reacting a cellulose material with ethylene oxide in a basic medium, said ethylene oxide being employed in a sufficient amount so that the resultant product has a hydroxyethyl MS in the range of 1.5 to 4.0, in which there is also present in the reaction mixture an amount sufficient so that the resultant product has an ether MS selected from the group consisting of a carboxymethoxy MS and a methoxy MS in the range of 0.02 to 0.2 of an additional etherification agent selected from the group consisting of methyl chloride and monochloroacetic acid, and recovering a modified hydroxyalkyl cellulose having a hydroxyethyl MS in the range of 1.5 to 4.0 and a carboxymethoxy MS and/or a methoxy MS in the range of 0.02 to 0.2.

4,424,348

METHODS OF MANUFACTURE OF NITRILE-CONTAINING GLUCURONIC ACID CONJUGATES

David Rubin, 5 Rav Zair, Jerusalem, Israel, assignor to Adolf W. Schwimmer, Savyon; Irwin Steven Schwartz, Tel Aviv and David Rubin, Jerusalem, all of, Israel

Filed Oct. 13, 1978, Ser. No. 951,270

Int. Cl.³ A61K *31/70;* **C07H** *15/18*

U.S. Cl. 536—17.9 **4 Claims**

1. A method for the production of mandelonitrile-β D-glucuronic acid, comprising:

condensing mandelic amide with methyl (tri-O-acetyl-α-D-glucopyranosyl)halide-uronate to form the methyl ester of mandelic amide-tri-O-acetyl-β-D-glucuronic acid;

reacting the product of said condensing step with acetic anhydride at a sufficient temperature and time to produce the methyl ester of mandelonitrile-tri-O-acetyl-β-D-glucuronic acid;

adding to the product of said reacting step a sufficient quantity of barium hydroxide to produce a white precipitate;

separating said precipitate;

treating said precipitate with a sufficient quantity of sulfuric acid until precipitation of barium sulfate is completed;

removing the supernatant from the product of said treating step; and

drying said supernatant to obtain mandelonitrile-β-D-glucuronic acid.

4,424,349

PROCESS FOR THE PREPARATION OF CATIONIC HYDRAZONE DYESTUFFS

Heinz Giesecke, Leverkusen, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

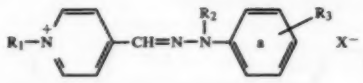
Filed May 6, 1982, Ser. No. 375,775

Claims priority, application Fed. Rep. of Germany, May 26, 1981, 3120991

Int. Cl.³ C09B *23/16*

U.S. Cl. 542—417 **11 Claims**

1. A process for the preparation of a cationic hydrazone dyestuff of the formula



wherein

R_1 is alkyl, alkenyl, aralkyl or cycloalkyl,

R_2 is hydrogen, alkyl, alkenyl, aryl, aralkyl or cycloalkyl, or alkylene bonded to the ring a,

R_3 is hydrogen or one or more non-ionic substituents customary in dyestuff chemistry, and

X^- is an anion,

wherein an aromatic or cycloaliphatic ring can be fused to the ring a, and wherein the radicals mentioned can carry non-ionic substituents customary in dyestuff chemistry, comprising treating 4-methylpyridine with a quaternising agent of the formula

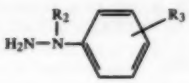
R_1—X

at −20° C. up to the boiling point of the system, reacting the resulting product with a base and a nitrite of the formula

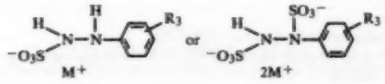
wherein

R is an organic radical,

at a temperature from −20° C. to +60° C., and reacting the product at a pH below 7 with a hydrazine of the formula



or with a hydrazosulphonate of the formula



wherein

M^+ is a monovalent metal cation or a mono-valent organically substituted ammonium cation or one equivalent of a divalent cation,

at a temperature from −20° C. up to the boiling point of the system.

4,424,350

2-DECARBOXY-2-TETRAZOLYL-PGI$_2$ COMPOUNDS

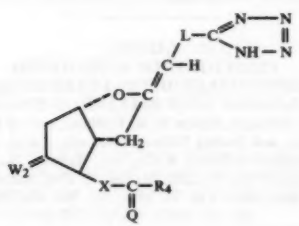
Roy A. Johnson, Kalamazoo; Frank H. Lincoln, Portage, and John E. Pike, Kalamazoo, all of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 819,940, Jul. 28, 1977, and a continuation-in-part of Ser. No. 725,550, Sep. 22, 1976, abandoned, and a continuation-in-part of Ser. No. 716,770, Aug. 23, 1976, abandoned. This application Mar. 27, 1981, Ser. No. 248,636

Int. Cl.^{3} C07D *405/06*; A61K *31/41*

U.S. Cl. 542—426 **1 Claim**

1. A compound of the formula



or a mixture comprising that compound and the enantiomer thereof

wherein W_2 is α—OH:β—H, α—H:β—OH, oxo, methylene, α—H:β—H, or α—CH_2OH:β—H;

wherein L is

(2) —$(CH_2)_d$—$C(R_2)_2$—,

(2) —CH_2—O—CH_2—Y—, or

(3) —CH_2CH=CH—,

wherein d is zero to 5, R_2 is hydrogen, methyl, or fluoro, being the same or different with the proviso that one R_2 is not methyl when the other is fluoro, and Y is a valence bond, —CH_2— or —$(CH_2)_2$—,

wherein Q is oxo, α—H:β—H, α—R_8:β—OH, or α—OH:-β—R_8,

wherein R_8 is hydrogen or alkyl or one to 4 carbon atoms, inclusive,

wherein R_4 is

—$C(R_5)(R_6)C_gH_{2g}$—CH_3,

—$C(R_5)(R_6)$—Z—(Ph I), or

—CH_2—CH=CH—CH_2CH_3,

wherein C_gH_{2g} is alkylene of one to 9 carbon atoms, inclusive, with one to 5 carbon atoms, inclusive, in the chain between —CR_5R_6 and terminal methyl, wherein R_5 and R_6 are hydrogen, alkyl of one to 4 carbon atoms, inclusive, or fluoro, being the same or different, with the proviso that one of R_5 and R_6 is fluoro only when the other is hydrogen or fluoro and the further proviso that neither R_5 nor R_6 is fluoro when Z is oxa (—O—); wherein Z represents an oxa atom (—O—) or C_fH_{2f} wherein C_fH_{2f} is a valence bond or alkylene of one to 9 carbon atoms, inclusive, with one to 6 carbon atoms, inclusive between CR_5R_6— and (Ph I); wherein (Ph I) is phenyl optionally substituted by one, 2, or 3 alkyl of one to 4 carbon atoms, inclusive, fluoro, chloro, trifluoromethyl, or —OR_7— wherein R_7 is alkyl of one to 4 carbon atoms, inclusive, with the proviso that not more than two such substituents are other than alkyl and such substituents being either the same or different; and

wherein X is

(1) trans—CH=CH—,

(2) cis—CH=CH—,

(3) —C≡C—, or

(4) —CH_2CH_2—;

including the lower alkanoates thereof.

4,424,351

PYRIDO[3,4-E]-AS-TRIAZINES

Pal Benko; Györgyi nee Lax Kovanyi; Judit nee Gergely Timar; Maria nee Lakatos Sigmond; Lujza Petocz; Peter Görög; Ibolya Kosoczky; Eniko nee Kiszelly Szirt, and Hristone Toncsev, all of Budapest, Hungary, assignors to Egyt Gyogyszervegyeszeti Gyar, Budapest, Hungary

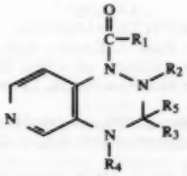
Filed Feb. 22, 1980, Ser. No. 123,807

Claims priority, application Hungary, Feb. 23, 1979, EE-2634

Int. Cl.^{3} A61K *31/53*; C07D *471/04*

U.S. Cl. 542—439 **8 Claims**

1. An acylated pyrido[3,4-e]-as-triazine derivative of the formula (I),



(I)

wherein

R_1 stands for a C_{1-20} alkyl group, C_{1-4} alkoxy group, C_{1-4} haloalkyl group, furyl group or pyridyl group or a phenyl, phenyl-(C_{1-4} alkyl) or phenyl-(C_{2-4} alkenyl) group optionally with 1 to 3 identical or different substituents on the aromatic group, said substituents being halo, trifluoromethyl, nitro, hydroxy, C_{1-4} alkyl or C_{1-4} alkoxy groups,

R_2 stands for hydrogen atom or a group of the general formula R_1—CO—, wherein R_1 is as defined above,

R_3 stands for hydrogen atom, a phenyl group having optionally a hydroxy substituent or up to 3 C_{1-4} alkoxy substituents, a naphthyl group having optionally a hydroxy substituent, a phenyl-(C_{1-4} alkyl) group, pyridyl group or a C_{1-20} alkyl group, and

R_4 stands for hydrogen atom or a group of the general formula R_1—CO—, wherein R_1 is as defined above, and R_5 forms together with R_2 or R_4 a valence bond, wherein

R_2 or R_4 taking part in forming said valence bond may not have the above meaning, or a pharmaceutically acceptable acid addition salt thereof.

5. A pharmaceutical composition for analgesic use, containing as active ingredient an analgesically-effective amount of at least one compound of the formula (I), wherein R_1, R_2, R_3 and R_4 are as defined in claim 1, or a pharmaceutically acceptable acid addition salt thereof, and a pharmaceutically acceptable excipient.

4,424,352
PALLADIUM(II) BIS(HEXAFLUOROACETYLACETONATE) ADDUCTS AND THEIR PREPARATION

Allen R. Siedle, Lake Elmo, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jun. 13, 1980, Ser. No. 159,367
Int. Cl.³ C07F 15/00
U.S. Cl. 544—4 11 Claims

1. Adducts of palladium(II) bis(hexafluoroacetylacetonate) of the formula

$$Pd(F_6ACAC)_2{\cdot}L_n$$

wherein

F_6ACAC is the hexafluoroacetylacetonate anion,

L is a Lewis base and n is an integer 1 to 4, with the provisos that

when n is 1, 2, 3 or 4, L is dimethylethylamine, benzylamine, imidazole, pyrazine, pyrazole, triphenylstibine, benzothiazole, or tert-butylisocyanide,

when n is 1, 2, or 3, L is ammonia, methylamine, dimethylamine, or pyridine,

when n is 1 or 2, L is trimethylamine, triphenylphosphine, triphenylarsine, 1,4-dithiane, alumina, silica, or aluminosilicates,

when n is 4, L is benzoselenazole,

when n is 2, L is 1,2-bis(diphenylphosphino)ethane, phenothiazine, or phenoselenazine,

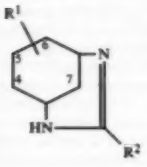
and when n is 1, L is phenazine, trimethylpyridine, bis(2-diphenylphosphinoethyl)phenylphosphine, phenoxathiin, tetrathianaphthalene, tetrathiatetracene, benzylmethylsulfide, diethylsulfide, or bis(diphenylphosphino)acetylene.

4,424,353
BICYCLIC AMIDINES

Rolf-Volker Meyer; Hans J. Kreuder, both of Krefeld, and Eckhard de Cleur, Duisburg, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 2, 1981, Ser. No. 317,299
Claims priority, application Fed. Rep. of Germany, Nov. 6, 1980, 3041834
Int. Cl.³ C07D 239/70; C07C 129/00; C08G 59/18
U.S. Cl. 544—253 3 Claims

1. Bicyclic amidines of the formula



wherein

R^1 is a hydrogen or alkyl having from 1 to 4 carbon atoms, and

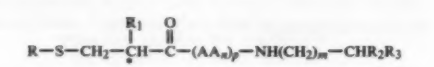
R^2 is a hydrogen, alkyl having from 1 to 18 carbon atoms, cycloalkyl having 5 to 14 carbon atoms, aralkyl having 7 to 16 carbon atoms or aryl having 6 to 20 carbon atoms.

4,424,354
INHIBITORS OF MAMMALIAN COLLAGENASE

Joseph E. Sundeen, Yardley, Pa., and Tamara Dejneka, Skillman, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Division of Ser. No. 273,142, Jun. 12, 1981, Pat. No. 4,382,081. This application Sep. 24, 1982, Ser. No. 424,735
Int. Cl.³ C07D 211/26, 239/02, 265/30; A61K 37/00; C01G 43/00; C01B 15/16, 25/16, 33/20; C07C 149/20, 147/02
U.S. Cl. 544—299 9 Claims

1. A compound of the formula



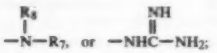
or salts thereof wherein

R is hydrogen, alkanoyl of 2 to 10 carbon atoms or arylcarbonyl;

R_1 is alkyl of 3 to 8 carbon atoms, cycloalkyl of 3 to 7 carbon atoms, aryl or arylalkyl;

R_2 is hydrogen;

R_3 is



R_4 is hydrogen, lower alkyl or arylalkyl;

R_7 and R_8 are each independently selected as hydrogen, lower alkyl or are combined as $-(CH_2)_4-$, $-(CH_2)_5-$ or $-CH_2CH_2-O-CH_2CH_2-$;

m is an integer from 0 to 7; p is an integer from 1 to 3;

AA_n is an amino acid chain of from one to three amino acids; n is 1 or 1, 2 or 1, 2, 3;

when p is 1, AA_n is AA_1;

when p is 2, AA_n is AA_1-AA_2;

when p is 3, AA_n is AA_1-AA_2-AA_3;

AA_1 is glycine or alanine;

AA_2 is glycine or alanine;

AA_3 is leucine, glutamine or isoleucine, and physiologically acceptable salts thereof.

4,424,355
RESOLUTION OF SUBSTITUTED DIBENZO[b,f]THIEPIN-3-CARBOXYLIC ACID-5-OXIDES WITH BRUCINE OR EPHEDRINE

Patrice C. Belanger; Haydn W. R. Williams, both of Dollard des Ormeaux, and Joshua Rokach, Chomeday-Laval, all of Canada, assignors to Merck & Co., Inc., Rahway, N.J.

Continuation of Ser. No. 229,222, Jan. 28, 1981, abandoned. This application Feb. 24, 1982, Ser. No. 351,708
Int. Cl.³ C07D 405/14, 337/14
U.S. Cl. 546—35 3 Claims

1. An improved process for the preparation of (−) 7 or (−) 8-fluoro-dibenzo[b,f]thiepin-3-carboxylic acid-5-oxide of the formula I, having an enantiomeric purity of at least 70 percent,

I

which comprises:

(1) Heating the racemic sulfoxide acid, (7 or 8)-fluorodibenzo[b,f]thiepin-3-carboxylic acid-5-oxide with an equimolar amount of brucine to form a diastereoisomeric mixture of brucine salts of the corresponding (−) and (+) acids;

(2) Recycling the major portion of the brucine (+) acid salt by crystallization, acidification and racemization to regenerate the starting racemic sulfoxide acid;

(3) Recovering the brucine (−) acid salt by evaporation of the crystallization mother liquors;

(4) Acidifying said brucine (−) acid salt to produce the desired sulfoxide acid product and recovering said product by crystallization.

2. The brucine salt of (−) 7 or 8 fluorodibenzo[b,f]thiepin-3-carboxylic acid-5-oxide.

3. The brucine salt of (+) 7 or 8-fluorodibenzo[b,f]thiepin-3-carboxylic acid-5-oxide.

4,424,356
PROCESS FOR THE PREPARATION OF 5,6,7,7A-TETRAHYDRO-4H-THIENO-[3,2,-C]PYRIDIN-2-ONE

Jean-Pierre Maffrand, Portet-sur-Garonne, France; Norio Suzuki, Chiba, Japan; Kynichi Matsubayashi, Funabashi, Japan, and Shinichiro Ashida, Ichikawa, Japan, assignors to Sanofi, Paris, France

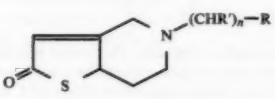
Filed Nov. 30, 1981, Ser. No. 325,795

Claims priority, application France, Nov. 28, 1980, 80 25275

Int. Cl.³ C07D *495/04*

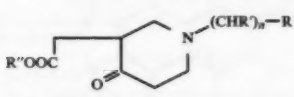
U.S. Cl. 546—114 **8 Claims**

1. Process for the preparation of 5,6,7,7a-tetrahydro-4H-pyridin-2-one derivatives of the formula:



(I)

in which R is hydrogen or phenyl substituted by at least one halogen, lower alkyl, lower alkoxy, nitro, carboxy, alkoxycarbonyl or cyano; R′ is hydrogen or a lower alkyl and n is 0, 1, 2, 3 or 4; and of their addition salts with mineral or organic acids, wherein a compound of the formula:



(II)

in which R, R′ and n have the same meanings as above and R″ is hydrogen or alkyl containing up to 4 carbon atoms, is treated in an organic solvent with gaseous hydrogen chloride and gaseous hydrogen sulphide.

4,424,357
PROCESS FOR PREPARING 4-ARYLOXY-3-PHENYLPIPERIDINES

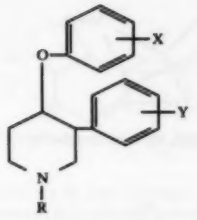
Solomon S. Klioze, Flemington, and Frederick J. Ehrgott, Bernardsville, both of N.J., assignors to Hoechst-Roussel Pharmaceuticals, Inc., Somerville, N.J.

Division of Ser. No. 14,548, Feb. 23, 1979, Pat. No. 4,216,218. This application Dec. 28, 1979, Ser. No. 108,014

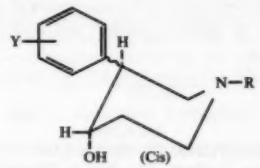
Int. Cl.³ C07D *211/46, 405/06*

U.S. Cl. 546—207 **2 Claims**

1. A method of preparing the trans isomer form of a compound of the formula

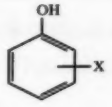


or a physiologically acceptable salt or stereoisomer thereof in which R is hydrogen, loweralkyl, cycloalkylloweralkyl, loweralkenyl, loweralkynyl, loweralkanoyl, cycloalkylloweralkanoyl, —COOR$_1$ or —R$_2$PhZ; R$_1$ is loweralkyl, loweralkenyl or —CH$_2$CCl$_3$; R$_2$ is loweralkylene, oxyloweralkylene, loweralkylenecarbonyl, carbonyllowerlkylene or alkylene ethylene ketal; Ph is phenyl or phenylene; Z is hydrogen, halogen, loweralkyl, loweralkoxy, hydroxy, nitro or amino; and X and Y are the same or different and each can be hydrogen, loweralkyl, halogen, nitro, trifluoromethyl, loweralkoxy or cyano, which comprises reacting in the presence of triphenylphosphine and diethylazodicarboxylate a cis 3-phenyl-4-piperidinol of the formula



(Cis)

in which R and Y are as defined with a phenol of the formula



where X is as defined.

4,424,358
β-3-AMINO NOR-TROPANE COMPOUNDS

Philippe L. Dostert, Paris; Thierry F. Imbert, Noisy le Roi, and Bernard P. Bucher, Marnes la Coquette, all of France, assignors to Delalande S.A., Courbevoie, France

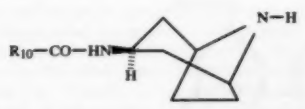
Division of Ser. No. 110,067, Jan. 7, 1980. This application Sep. 11, 1980, Ser. No. 186,100

Claims priority, application France, Jan. 16, 1979, 79 00971; Dec. 26, 1979, 79 31656

Int. Cl.³ C07D *451/00*; A61K *31/46*

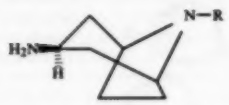
U.S. Cl. 546—124 **9 Claims**

1. A compound having the formula

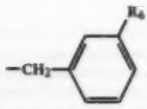


in which R$_{10}$ is methyl or ethoxy, and acid addition salts thereof.

2. A compound having the formula



in which R is benzyl, meta-monosubstituted benzyl having the formula



in which R_6 is CH_3, CF_3 or halogen, para-monosubstituted benzyl having the formula

in which R_7 is CH_3O, lower alkyl, CF_3 or halogen, 3,4-dichlorobenzyl, 2-methyl thiophene, 3-methyl thiophene, 2-methyl furan or cyclohexylmethyl, and acid addition salts thereof.

4,424,359

VINYL-SUBSTITUTED 2,2'-BIPYRIDINE COMPOUNDS

Jürgen Kaschig, Freiburg, Fed. Rep. of Germany, and Dieter Lohmann, Münchenstein, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

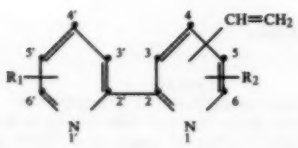
Filed Jul. 27, 1981, Ser. No. 287,859

Claims priority, application Switzerland, Jul. 17, 1980, 5482/80

Int. Cl.³ C07D *401/04*

U.S. Cl. 546—255 **6 Claims**

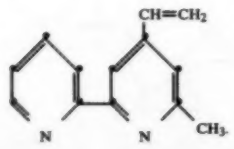
1. A compound of the formula I



(I)

wherein the vinyl group is bonded in the 4-position or 6-position, R_1 is hydrogen, C_{1-6}-alkyl, C_{1-6}-alkoxy, phenyl or phenoxy and R_2 is hydrogen or methyl, with the proviso that one of R_1 and R_2 is not hydrogen, if the vinyl group is bonded in the 6-position.

6. A compound according to claim 1, of the formula



4,424,360

PROCESS FOR THE PREPARATION OF FUSED 1,2,3-TRIAZOLES

Ferdinand Hagedorn, Leverkusen, and Werner Evertz, Monheim, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Mar. 25, 1982, Ser. No. 361,693

Claims priority, application Fed. Rep. of Germany, Apr. 14, 1981, 3115070

Int. Cl.³ C07D *249/16*

U.S. Cl. 548—257 **20 Claims**

1. In a process for the preparation of a fused 1,2,3-triazole by reaction of an ortho-diaminoaryl with an ester of nitrous acid in a solvent or diluent, the improvement wherein the process is carried out in the presence of a 1,2,3-triazole as catalyst.

4,424,361

PROCESS FOR PREPARING POLYCYCLIC TRIAZOLES USED TO INHIBIT ALLERGIC RESPONSES

John M. Tedder, Redhill, England, assignor to Beecham Group Limited, England

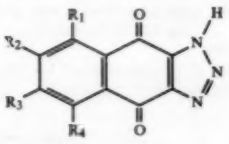
Filed Jan. 14, 1981, Ser. No. 224,954

Claims priority, application United Kingdom, Jan. 23, 1980, 8002328

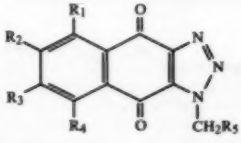
Int. Cl.³ C07D *249/22*

U.S. Cl. 548—259 **5 Claims**

1. A process for the preparation of a triazole of the formula:



or a pharmaceutically acceptable salt thereof wherein R_1, R_2, R_3 and R_4 are the same or different and each is hydrogen, halo, nitro, alkyl of 1 to 6 carbon atoms or alkoxy of 1 to 6 carbon atoms, or any adjacent two of R_1 to R_4 taken together are an alkylene group of 3 to 5 carbon atoms or 1,4-buta-1,3-dienylene which consists essentially of the steps of (a) allowing a compound of formula



wherein R_5 is unsubstituted phenyl or phenyl substituted with one or two members selected from the group consisting of alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, halo and nitro, and R_1, R_2, R_3 and R_4 are as herein defined to react with an alkali metal primary alkoxide of 1 to 4 carbon atoms and (b) optionally treating the resulting alkali metal salt with acid to form the free triazole.

4,424,362

PROCESS FOR PREPARING A TRANS-6-PROPENYL BENZIMIDAZOLE

Thomas A. Crowell, Greenwood, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Apr. 8, 1982, Ser. No. 366,808

Int. Cl.³ C07D *235/30*

U.S. Cl. 548—306 **3 Claims**

1. A process for preparing trans-1-isopropylsulfonyl-2-

amino-6-(1-phenyl-1-propenyl)benzimidazole which comprises reacting 1-isopropylsulfonyl-2-amino-6-(1-phenyl-1-hydroxy-1-propyl)benzimidazole with acetic acid.

4,424,363

SUBSTITUTED 3-AMINOPYRAZOLES

Peter Plath, Ludwigshafen; Bruno Wuerzer, Limburgerhof, and Wolfgang Rohr, Mannheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

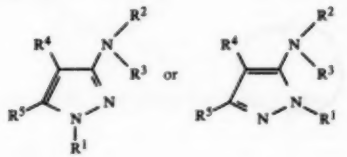
Continuation of Ser. No. 181,145, Aug. 25, 1980, abandoned, Division of Ser. No. 951,566, Oct. 16, 1978, Pat. No. 4,260,775. This application Jul. 27, 1981, Ser. No. 286,978

Claims priority, application Fed. Rep. of Germany, Oct. 22, 1977, 2747531

Int. Cl.³ C07D *231/38*

U.S. Cl. 548—362 **2 Claims**

1. A pyrazole of the formula



where

R^1 is hydrogen,

R^2 is hydrogen,

R^3 is phenyl,

R^4 is methoxycarbonyl, and

R^5 is hydrogen or methyl, and the agriculturally acceptable acid addition salts thereof.

4,424,364

PREPARATION OF PYRAZOLES

Norbert Goetz, Worms; Dietrich Mangold, Neckargemuend, and Josef Wahl, Schifferstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 15, 1981, Ser. No. 283,650

Claims priority, application Fed. Rep. of Germany, Aug. 1, 1980, 3029160

Int. Cl.³ C07D *231/12*

U.S. Cl. 548—373 **3 Claims**

1. In a process for producing pyrazole by reacting pyrazoline with sulfur at a temperature above 50° C., the improvement which comprises:

carrying out the reaction in a solvent of pyridine or a mixture of pyridine and a hydrocarbon.

4,424,365

1,2,8,8A-CYCLOPROPA[C]BENZO[1,2,-B:-4,3-B']DIPYRROL-4(5H)-ONES

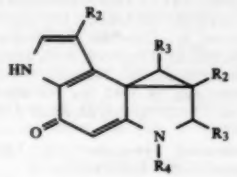
Wendell Wierenga, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Continuation-in-part of Ser. No. 207,838, Nov. 18, 1980, abandoned. This application Jun. 22, 1982, Ser. No. 391,055

Int. Cl.³ C07C *487/02*; A01N *43/38*

U.S. Cl. 548—421 **2 Claims**

1. A compound of the formula, which can be in the keto or enol form,



wherein R_2 and R_3 are H, alkyl of from 1 to 5 carbon atoms, inclusive, and phenyl; R_4 is selected from the group consisting of SO^2R_2, SO_2CH_2 COphenyl, CO_2CH_2Z where Z is selected from the group consisting of CH_2I, CCl_3, $CH_2SO_2R_2$, phenyl, and fluorenylmethyl.

4,424,366

TRICYCLIC IMIDYL DERIVATIVES

Hans Zweifel, Basel; Walter Schilling, Himmelried; Angelo Storni, Rheinfelden, and Daniel Bellus, Riehen, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

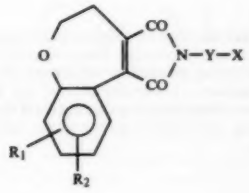
Division of Ser. No. 183,905, Sep. 4, 1980, Pat. No. 4,337,200, which is a continuation-in-part of Ser. No. 9,985, Feb. 6, 1979, Pat. No. 4,242,264. This application Feb. 16, 1982, Ser. No. 349,420

Claims priority, application Switzerland, Feb. 8, 1978, 1400/78

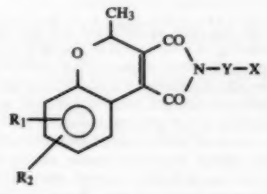
Int. Cl.³ C07D *491/044, 491/052*

U.S. Cl. 548—431 **5 Claims**

1. A compound of the formula



or



in which R and R_1 independently of one another are hydrogen, halogen, alkyl having 1 to 4 carbon atoms or methoxy, Y is alkylene having 1 to 30 carbon atoms, cycloalkylene having 5 or 6 carbon atoms, methylenebis(cyclohexylene), arylene having 6 to 10 carbon atoms, aralkylene having 7 or 8 carbon atoms or alkylarylene having 7 or 8 carbon atoms; or said arylene substituted by one alkyl of 1 to 4 carbon atoms, by one alkoxy of 1 to 4 carbon atoms or by one nitro, and X is —OH.

4,424,367

5-(4-AMINOPHENYL)-2-THIOPHENECARBOXIMIDAMIDE HYDROCHLORIDE HEMIHYDRATE

Stanford S. Pelosi, Jr.; Chia-Nien Yu; Ronald E. White, and George C. Wright, all of Norwich, N.Y., assignors to Norwich Eaton Pharmaceuticals, Inc., Norwich, N.Y.

Filed Aug. 19, 1982, Ser. No. 409,652

Int. Cl.³ C07D *333/48;* **A61K** *31/38*

U.S. Cl. 549—74 **1 Claim**

1. The compound 5-(4-aminophenyl)-2-thiophenecarboximidamide hyrocholoride hemihydrate.

4,424,368

PROCESS FOR MAKING PHOSPHORUS DERIVATIVES OF AMINOTHIOMETHYLCARBAMATES

Stephen J. Nelson, Comstock Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

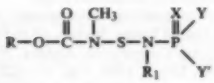
Division of Ser. No. 170,342, Jul. 21, 1980, Pat. No. 4,354,975, which is a continuation of Ser. No. 43,277, Jun. 1, 1979, abandoned. This application Jun. 18, 1982, Ser. No. 389,731

The portion of the term of this patent subsequent to Jul. 21, 1998, has been disclaimed.

Int. Cl.³ C07D *307/82, 339/00;* **C07F** *9/24*

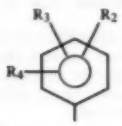
U.S. Cl. 549—220 **51 Claims**

1. A process for preparing a compound having the formula:



I

wherein R is selected from the group consisting of:

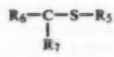


a.

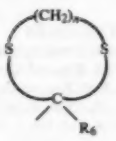
wherein R, R, and R are the same or different and are selected from the group consisting of hydrogen, lower-alkyl of one to five carbon atoms, inclusive, halogen, lower-alkoxy of one to five carbon atoms, inclusive, lower-alkylthio of one to five carbon atoms, inclusive, dialkylamino with each alkyl the same or different and having one to three carbon atoms, inclusive, and $N{=}CHN(CH_3)_2$;

b.

wherein A and B are the same or different and are selected from the group consisting of lower-alkyl of one to five carbon atoms, inclusive, lower-alkylthio of one to five carbon atoms, inclusive, phenylthio wherein phenyl is unsubstituted or substituted with one to three substituents, same or different, selected from the group consisting of halogen and lower-alkyl of one to four carbon atoms, inclusive, monocyano substituted alkylthio of one to five carbon atoms, inclusive, cyano, alkoxy having one to five carbon atoms, inclusive, phenyl, and hydrogen, with the proviso that when A is hydrogen, B is of the formula:

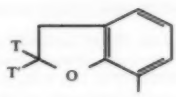


wherein R_5 is selected from the group consisting of alkyl of one to three carbon atoms, inclusive, and phenyl; R_6 is alkyl of one to three carbon atoms, inclusive; R_7 is selected from the group consisting of alkyl of one to three carbon atoms, inclusive, and SR_8, wherein R_8 is alkyl and is the same alkyl group as R_5, and taking R_5 and R_8 together with the atoms to which they are attached form a dithio heterocyclic of the formula:



wherein n is 2 or 3 and the alkylene portion ofthe ring is unsubstituted or substituted with one or two methyl groups; A and B taken together with the carbon atoms to which they are attached form a dithio heterocyclic of the formula:

wherein m is 2 or 3 and the alkylene portion of the ring is unsubstituted or substituted with one to two methyl groups; and



c.

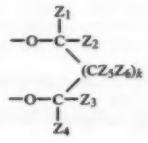
wherein T and T' can be the same or different and are selected from the group consisting of hydrogen and lower alkyl of from one to six carbons; R_1 is selected from the group consisting of lower-alkyl, phenyl, substituted phenyl, phenyl lower-alkyl, and cyclo- alkyl; X is oxygen or sulfur; Y and Y' are the same or different and are selected from the group consisting of:

Y_1 and Y'_1 I_1

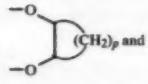
and

Y and Y'

taken together to form a functionality selected from the group consisting of:

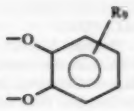


I'



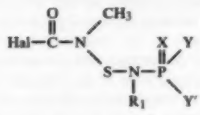
I''

-continued



I'''

wherein Y_1 and Y'_1 are selected from the group consisting of lower-alkyl, lower-alkoxy, lower-alkylthio, cycloalkyl, phenyl, substituted phenyl, phenoxy, substituted phenoxy, thiophenoxy, and substituted thiophenoxy, Z_1 through Z_6 are the same or different and are selected from the group consisting of hydrogen, methyl and ethyl; and k is 0 or 1, p is three or four and R_9 is selected from the group consisting of hydrogen, lower alkyl, lower alkoxy and halogen; which comprises (1) preparing an intermediate selected from the group consisting of:

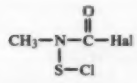


II

in a process wherein a compound having the formula

V

is reacted with a compound having the formula



IV

wherein R_1, X, Y and Y' are as defined for formula I and Hal is fluorine or chlorine and, (2) contacting the intermediate II with a compound having the formula ROH wherein R is the same as above.

4,424,369

SUBSTITUTED PYRAN-2-ONES

Hans-Georg Schmidt, Niederkassel, Fed. Rep. of Germany, assignor to Dynamit Nobel AG, Troisdorf, Fed. Rep. of Germany

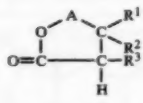
Division of Ser. No. 218,593, Dec. 19, 1980, Pat. No. 4,348,535. This application Jul. 13, 1981, Ser. No. 282,689

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1979, 2952068; Dec. 3, 1980, 3045455; Dec. 6, 1980, 3046059

Int. Cl.³ C07D *309/30*

U.S. Cl. 549—273 **5 Claims**

1. A substituted lactone of the formula



wherein A stands for —CHY—CHY—, Y being Cl or Br and R^1, R^2 and R^3 are the same or different radicals from the group of hydrogen and C_1 to C_{10} alkyl.

4,424,370

CYCLIC ACETALS OF N-ACYLGLUTAMIC ACID-γ-SEMIALDEHYDES, PROCESS FOR THEIR PRODUCTION AND USE

Axel Kleemann, and Marc Samson, both of Hanau, Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

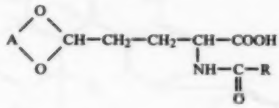
Filed Nov. 10, 1981, Ser. No. 320,129

Claims priority, application Fed. Rep. of Germany, Nov. 15, 1980, 3043252

Int. Cl.³ C07D *317/30*

U.S. Cl. 549—373 **5 Claims**

1. A cyclic acetal of N-acylglutamic acid-γ-semialdehyde of the formula



(I)

in which A is an alkylene group with 2 to 3 carbon atoms or such an alkylene group substituted by 1 to 3 methyl groups and R is a methyl, methoxy, phenyl, or benzyloxy group.

4,424,371

3-CHLORO-4-CYANOPHENYL 4'-SUBSTITUTED BENZOATES

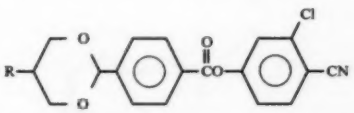
Ying-Yen Hsu, Los Altos, Calif., assignor to Timex Corporation, Waterbury, Conn.

Filed Sep. 23, 1982, Ser. No. 422,048

Int. Cl.³ G02F *1/13*; C09K *3/34*; C07D *319/04*

U.S. Cl. 549—373 **5 Claims**

1. A compound of the formula:



wherein R is an alkyl group having 1 to 8 carbon atoms.

4,424,372

4-SUBSTITUTED PHENYL 4'-(5-N-ALKYL-1,3-DIOXAN-2-YL) THIOBENZOATES

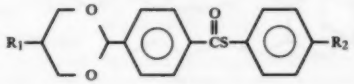
Ying-Yen Hsu, Los Altos, Calif., assignor to Timex Corporation, Waterbury, Conn.

Filed Sep. 20, 1982, Ser. No. 419,655

Int. Cl.³ C09K *3/34*; C07D *319/04*; G02F *1/13*

U.S. Cl. 549—374 **6 Claims**

1. A compound of the formula:



wherein R_1 is an alkyl group having 1 to 10 carbon atoms and R_2 is selected from the group consisting of an alkyl and alkoxy group having 1 to 10 carbon atoms, a cyano group and a nitro group.

4,424,373

SECALONIC ACIDS

Itsuo Kurobane, Madison, Wis.; Leo C. Vining, and Alister G. McInnes, both of Halifax, Canada, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

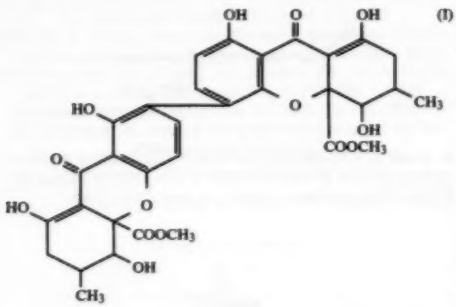
Continuation of Ser. No. 113,664, Jan. 21, 1980, abandoned. This application Aug. 11, 1982, Ser. No. 407,100

Claims priority, application Japan, Jan. 30, 1979, 54-8774

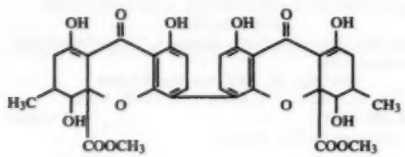
Int. Cl.³ C07D 311/86

U.S. Cl. 549—393 5 Claims

1. A secalonic acid in substantially pure form having a 2,4'-linkage of the formula (I) or a 4,4'-linkage of the formula (II),



(I)



(II)

4,424,374

BICYCLOHEPTANE DERIVATIVES

Michael P. L. Caton, Upminister, and Keith A. J. Stuttle, Rochford, both of England, assignors to May & Baker Limited, London, England

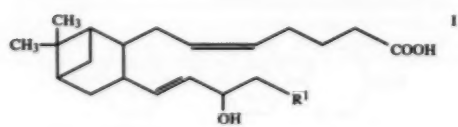
Continuation of Ser. No. 81,841, Oct. 4, 1979, abandoned, which is a division of Ser. No. 27,788, Apr. 6, 1979, abandoned. This application Mar. 13, 1981, Ser. No. 243,567

Claims priority, application United Kingdom, Apr. 10, 1978, 14032/78

Int. Cl.³ C07C 61/38

U.S. Cl. 424—308 9 Claims

1. A compound of the formula:



I

wherein R^1 represents a phenoxy or benzyl group, and pharmaceutically acceptable salts thereof, and alkyl esters thereof containing from 1 to 12 carbon atoms in the alkyl moiety which may be straight- or branched-chain.

4,424,375

METHOD AND APPARATUS FOR PERFORMING CARBONYLATION REACTIONS

Moustafa El-Chahawi, Troisdorf; Uwe Prange, Niederkassel-Ranzel; Hermann Richtzenhain, Much-Schwellenbach, and Wilhelm Vogt, Cologne, all of Fed. Rep. of Germany, assignors to Dynamit Nobel AG, Troisdorf-Cologne, Fed. Rep. of Germany

Continuation of Ser. No. 154,161, May 28, 1980, abandoned, which is a continuation of Ser. No. 744,357, Nov. 23, 1976, abandoned. This application Jun. 16, 1981, Ser. No. 274,108

Claims priority, application Fed. Rep. of Germany, Dec. 1, 1975, 2553931

Int. Cl.³ C07C 69/76

U.S. Cl. 560—105 6 Claims

1. In the process for producing carboxylic acid esters or salts by contacting a halogen alkyl compound of the formula R—CH_2-halogen with carbon monoxide and a basic substance for maintaining a pH in the reaction mixture, in the range of 5 to 10, in the presence of a metal carbonyl carbonylation catalyst for carbonylation of the halogen alkyl and production of the corresponding ester or salt of the basic substance, the improvement which comprises performing said contacting in a reaction vessel, circulating a liquid mass of the halogen alkyl, basic substance and metal carbonyl carbonylation catalyst through the vessel and maintaing a carbon monoxide atmosphere in the vessel with a pressure of 0.1 to 100 bar, injecting the circulating liquid mass into the vessel with a nozzle to spray the liquid mass into the vessel and intimately mixing the liquid mass with carbon monoxide in the nozzle for injection of carbon monoxide into the vessel with the sprayed liquid mass.

4,424,376

PROSTACYCLIN INTERMEDIATES

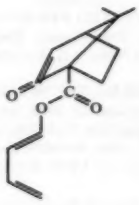
Jerome L. Moniot, Richboro, Pa.; Rita T. Fox, Princeton; Peter W. Sprague, Pennington, and Martin F. Haslanger, Lambertville, all of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Division of Ser. No. 305,053, Sep. 24, 1981, Pat. No. 4,362,872. This application Sep. 23, 1982, Ser. No. 422,244

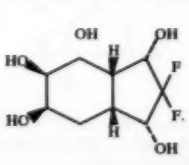
Int. Cl.³ C07C 35/32, 69/757

U.S. Cl. 560—120 5 Claims

1. A prostacyclin intermediate having the structure



5. A prostacyclin intermediate having the structure



4,424,377

BENEZENESULFONYLISOCYANATES

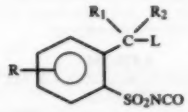
Gregory W. Schwing, Lincoln University, Pa., assignor to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Division of Ser. No. 264,661, May 27, 1981, Pat. No. 4,348,220, which is a continuation-in-part of Ser. No. 168,350, Jul. 11, 1980, abandoned. This application May 14, 1982, Ser. No. 378,398

Int. Cl.³ C07C *143/828*

U.S. Cl. 564—91 **4 Claims**

1. A compound selected from



(III)

L is $S(O)_nR_7$ or OR_9;

R is H, F, Cl, Br, NO_2, CF_3, C_1–C_3 alkyl or C_1–C_3 alkoxy;

R_1 is H or C_1–C_4 alkyl;

R_2 is H or CH_3;

R_7 is C_1–C_4 alkyl; and

R_9 is C_1–C_6 alkyl, C_3–C_4 alkenyl, CH_2CF_3, CF_2CF_2H or C_5–C_6 cycloalkyl; and

n is 0 or 2.

4,424,378

METHYL SUBSTITUTED PINYL OXOPENTENES, ORGANOLEPTIC USES THEREOF AND PROCESS FOR PREPARING SAME

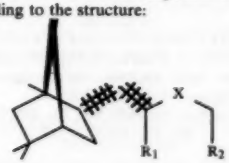
Braja D. Mookherjee, Holmdel; Robert W. Trenkle, Bricktown; Robin K. Wolff, Point Pleasant; Richard M. Boden, Ocean, and Takao Yoshida, West Long Branch, all of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Continuation-in-part of Ser. No. 362,237, Mar. 26, 1982. This application Jul. 8, 1982, Ser. No. 396,485

Int. Cl.³ C07C *49/21*

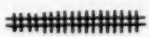
U.S. Cl. 568—374 **3 Claims**

1. A compound or mixture of compounds each of which is defined according to the structure:



wherein one of the lines:

is a carbon-carbon double bond and the other of the lines:



is a carbon-carbon single bond; wherein one of R_1 or R_2 is methyl and the other of R_1 or R_2 is hydrogen; and wherein X represents ketone having the structure:

4,424,379

CYCLOHEXENYL-ALPHA-ALKYL ACROLEIN DERIVATIVES

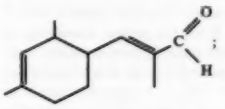
Mark A. Sprecker, Sea Bright, N.J.; Philip T. Klemarczyk, Newington, Conn., and Robert P. Belko, Woodbridge, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

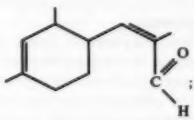
Filed Jul. 16, 1982, Ser. No. 398,953

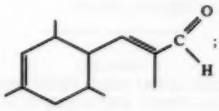
Int. Cl.³ C07C *47/225*

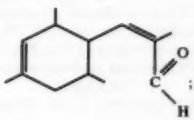
U.S. Cl. 568—446 **10 Claims**

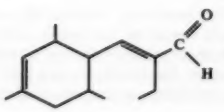
1. At least one aldehyde having a structrue selected from the group consisting of:



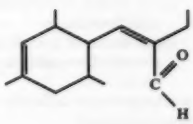








and



4,424,380

HYDROFORMYLATION CATALYST AND PROCESS OF USING IT

Chao-Yang Hsu, Media, Pa., assignor to Sun Tech, Inc., Philadelphia, Pa.

Filed Dec. 7, 1981, Ser. No. 327,867

Int. Cl.³ C07C *45/50*

U.S. Cl. 568—454 **9 Claims**

1. In the process of hydroformylating an olefin containing 2 to about 20 carbon atoms by reacting the olefin with hydrogen and carbon monoxide at elevated pressure in the presence of a catalyst to produce an aldehyde, the improvement of using as catalyst a complex of the formula $Pt(Acetylacetonate)_2/mMX_2.nH_2O/xPR_3$ where M is a Group IVA metal, X is a halogen atom, m is an integer from about 2 to about 10, n is

0 or 2, x is an integer from about 5 to about 20, and PR_3 is a phosphine where R is an alkyl or aryl group.

4,424,381

PROCESS FOR SEPARATING DIHYDRIC PHENOLS

Gerd Leston, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Apr. 26, 1982, Ser. No. 372,062
Int. Cl.³ C07C *37/68*
U.S. Cl. 568—753 37 Claims

1. A process for resolving a mixture of two or more dihydric phenols comprising the step of:

treating a mixture of two or more dihydric phenols with a metal halide salt selected from the group consisting of calcium bromide, calcium chloride, lithium bromide, magnesium chloride and magnesium bromide, at a temperature of from about 0° C. to about 100° C., in the presence of an aliphatic ether, so as to form preferentially a complex comprised of the selected halide salt, the ether and one of the dihydric phenols;

whereby the preferentially-formed halide salt-ether-dihydric phenol complex may be isolated and thereafter decomposed to a product comprising a predominantly greater amount of one dihydric phenol over other dihydric phenols present, as compared to the relative amounts of dihydric phenols present in the original mixture of dihydric phenols.

4,424,382

SUPERACID CATALYZED PREPARATION OF RESORCINOL FROM META-ISOPROPYLEPHEOL

George A. Olah, Beverly Hills, Calif., assignor to PCUK Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Continuation-in-part of Ser. No. 211,771, Dec. 1, 1980, abandoned, which is a division of Ser. No. 130,402, Mar. 14, 1980, Pat. No. 4,339,614. This application Jun. 1, 1982, Ser. No. 383,940
Int. Cl.³ C07C *37/00, 39/06*
U.S. Cl. 568—783 3 Claims

1. A process for producing substantially pure meta-isopropylphenol which comprises isomerizing ortho or para isopropylphenol isomers or mixtures thereof which can also include the meta isomer but which are not substantially pure meta-isopropylphenol in the presence of a combination catalyst of:

(a) an excess of anhydrous hydrogen fluoride and a Lewis acid fluoride, or

(b) an excess of anhydrous hydrogen fluoride and a perfluorinated alkanesulfonic superacid of one to eighteen carbon atoms

at a temperature sufficient to produce substantially pure meta-isopropylphenol.

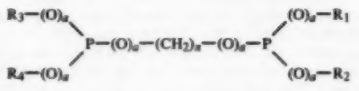
4,424,383

PROCESS FOR PRODUCING ETHANOL AND N-PROPANOL FROM METHANOL

Boy Cornils, Dinslaken; Carl D. Frohning, Oberhausen; Gerhard Diekhaus, Oberhausen; Ernst Wiebus, Oberhausen, and Helmut Bahrmann, Hünxe, all of Fed. Rep. of Germany, assignors to Ruhrchemie Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 10, 1981, Ser. No. 320,008
Claims priority, application Fed. Rep. of Germany, Nov. 11, 1980, 3042434
Int. Cl.³ C07C *31/08, 29/00*
U.S. Cl. 568—902 13 Claims

1. A method for the production of ethanol and n-propanol comprising reacting methanol with carbon monoxide and hydrogen in the presence of a catalyst containing a cobalt compound, a ruthenium compound, iodine or an iodide, and a bi-dentate organic phosphine or phosphite of the formula



wherein R_1, R_2, R_3, and R_4 are individually hydrogen, alkyl radicals having 1 to 16 carbon atoms, and aryl radicals having 6 to 15 carbon atoms; a is 0 or 1, and n is an integer from 1 to 6; the reaction being carried out at 150° to 250° C. and 450 to 600 bars.

4,424,384

PROCESS FOR HOMOLOGATION OF METHANOL TO ETHANOL

Jiang-Jen Lin, Round Rock, and John F. Knifton, Austin, both of Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed May 17, 1982, Ser. No. 378,531
Int. Cl.³ C07C *29/00, 31/08*
U.S. Cl. 568—902 15 Claims

1. A process for preparing ethanol which comprises contacting a mixture of carbon monoxide, hydrogen, and methanol with an iodide-free catalyst system comprising a ruthenium-containing compound, an iodide-free quaternary phosphonium base or salt and a halide-free cobalt-containing compound in the presence of a substantially inert solvent at a pressure of 500 psig or greater, and at a temperature of about 150° C. or greater.

4,424,385

SYNTHESIS OF NITROMETHANE

Sheldon B. Markofsky, 19340 Olney Mill Rd., Olney, Md. 20832, assignor to W. R. Grace & Co., New York, N.Y.

Filed Aug. 2, 1982, Ser. No. 404,127
Int. Cl.³ C07C *76/02*
U.S. Cl. 568—948 7 Claims

1. A process for forming nitromethane comprising contacting in a reaction zone an alkali metal or alkaline earth metal nitrite with a methyl halide under elevated pressure and at a temperature and a time sufficient to produce nitromethane, the ratio of methyl halide to metal nitrite being at least about 2:1 and separating and recovering the formed nitromethane.

4,424,386

METHYLCHLOROFORM STABILIZER COMPOSITIONS EMPLOYING THIAZOLIDINE

Nobuyuki Ishibe, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Sep. 10, 1981, Ser. No. 300,715
Int. Cl.³ C07C *17/42*
U.S. Cl. 570—109 4 Claims

1. A stabilized methylchloroform composition consisting essentially of methylchloroform, a stabilizing amount of thiazolidine and, optionally, a stabilizing amount of a nitroalkane.

4,424,387

ADAMANTYL CARBOXYLIC AND SULFONIC ACID CATALYZED PARAFFIN ISOMERIZATION

George M. Kramer, Berkeley Heights, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Mar. 15, 1983, Ser. No. 475,451
Int. Cl.³ C07C *5/30*
U.S. Cl. 585—743 19 Claims

1. An isomerization process comprising the step of contacting a C_4-C_6 paraffinic hydrocarbon with a strong acid system in the presence of an adamantyl carboxylic acid, adamantyl sulfonic acid, or mixture thereof, said adamantyl containing at least one unsubstituted bridgehead position, and said process being conducted at a temperature of about −100° C. to 150°

C., thereby producing a branched isomer of said paraffinic hydrocarbon.

4,424,388

PRODUCTION OF ALCOHOLS BY HYDRATION OF OLEFINS

David G. Braithwaite, deceased, late of Tyler, Tex. by Jacqueline M. Braithwaite, executrix, and Joe D. Pickle, Flint, Tex., assignors to Improtec, Tyler, Tex.

Continuation-in-part of Ser. No. 285,306, Jul. 20, 1981, abandoned. This application Jun. 25, 1982, Ser. No. 392,311

Int. Cl.³ C07C *29/04*

U.S. Cl. 568—899 **6 Claims**

1. In a process for the production of alcohol within a reaction medium by hydration of propylene, the propylene being contacted with a sulfonated ion-exchange resin in the presence of water to hydrate and convert said propylene to isopropanol, with by-products inclusive of diisopropyl ether and propylene polymerization products

the improvement comprising

adding a glycol diether solvent selected from the group consisting of dialkyl ethers of diethylene glycol and dialkyl ethers of tetraethylene glycol to the reaction medium in concentration ranging from about 40 percent to about 90 percent, based on the weight of water and glycol diether solvent and hydrating said propylene at temperatures ranging from about 110° C. to about 185° C. at total pressures ranging from about 100 psi to about 1000 psi sufficient to disperse the water and propylene to form a homogeneous mixture which lies in contact with the ion-exchange resin, the homogeneous mixture containing two dispersed liquid phases, a glycol diether phase and a water phase, the reaction which forms the isopropanol proceeding predominantly in the glycol diethyl phase and to a lesser extent in the water phase, the products being distributed between the two phases, the isopropanol being approximately equally distributed between the phases, the diisopropyl ether and propylene polymerization products being distributed predominantly within the glycol diether phase, whereby continuous extraction of the isopropanol out of the glycol diether phase effectively displaces the equilibrium toward higher isopropanol production, and conversely the presence of diisopropyl ether in the glycol diether phase suppresses the equilibrium and minimizes formation of the diisopropyl ether and other by-product formation.

4,424,389

SYNTHESIS OF 6-HYDROXYCHROMAN-2-METHANOL DERIVATIVES

Yoji Sakito, Ibaraki, Japan, assignor to Sumitomo Chemical Company, Limited, Osaka, Japan

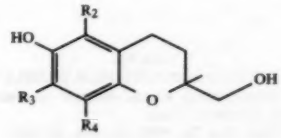
Filed Apr. 12, 1982, Ser. No. 367,550

Claims priority, application Japan, Apr. 30, 1981, 56-66681

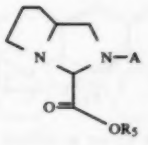
Int. Cl.³ C07D *311/72, 311/58*

U.S. Cl. 549—407 **17 Claims**

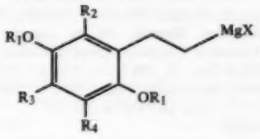
8. A process for producing a compound of the formula,



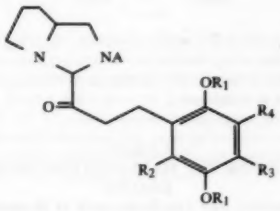
wherein R_2, R_3 and R_4 are each a hydrogen atom or a C_1–C_4 alkyl group, which comprises reacting a compound of the formula,



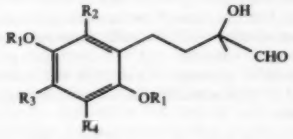
wherein A is an aryl group and R_5 is a C_1–C_4 alkyl group, with a compound of the formula,



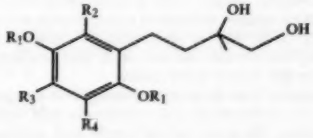
wherein R_1 is a C_1–C_3 alkyl group, X is a halogen atom and R_2, R_3 and R_4 are defined above, to obtain a compound of the formula,



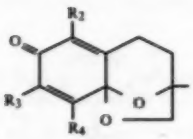
wherein A, R_1, R_2, R_3 and R_4 are as defined above, reacting the resulting compound with methylmagnesium halide and then hydrolyzing to obtain a compound of the formula,



wherein R_1, R_2, R_3 and R_4 are as defined above, reducing the resulting compound to obtain a compound of the formula,



wherein R_1, R_2, R_3 and R_4 are as defined above, and then oxidizing the resulting compound to obtain a compound of the formula,



wherein R_2, R_3 and R_4 are as defined above, followed by reduction.

4,424,390

PROCESS FOR PRODUCING 5-HALOMETHYLFURFURAL

Kazuhiko Hamada, Ibaraki; Hiroshi Yoshihara, Takatsuki, and Gohfu Suzukamo, Ibaraki, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Oct. 28, 1982, Ser. No. 437,254
Claims priority, application Japan, Nov. 6, 1981, 56-178508
Int. Cl.³ C07D 307/46
U.S. Cl. 549—483 8 Claims

1. A process for producing 5-halomethylfurfural represented by the formula (I),

(I)

wherein X is Cl or Br, which comprises carrying out an acid-decomposition of saccharide in a water/organic solvent/magnesium halide system, in the presence or absence of a surface active agent as a catalyst.

4,424,391

PROCESS FOR THE MANUFACTURE OF OLEFINE OXIDES

Rene Walraevens, and Luc Lerot, both of Brussels, Belgium, assignors to Solvay & Cie, Brussels, Belgium

Continuation of Ser. No. 147,624, May 7, 1980, abandoned. This application Sep. 20, 1982, Ser. No. 420,320
Claims priority, application France, May 10, 1979, 79 12145
Int. Cl.³ C07D 301/14
U.S. Cl. 549—525 20 Claims

1. In a process for the manufacture of an olefine oxide containing from 3 to 10 carbon atoms in its molecule and having a boiling point of at least 370° K. under atmospheric pressure by

(1) reacting a carboxylic acid with hydrogen peroxide in a reactor in the presence of a catalyst and an inert organic solvent to yield a reaction mixture containing percarboxylic acid

(2) withdrawing a portion of the reaction mixture containing percarboxylic acid from the reactor in step (1) and separating the withdrawn portion by decantation into an aqueous phase and an organic phase which comprises an organic solution of the percarboxylic acid in the organic solvent

(3) epoxidizing olefine in an epoxidation reactor with the separated organic solution of percarboxylic acid obtained in step (2) to yield an epoxidation reaction mixture containing olefine oxide, the carboxylic acid, the inert organic solvent and unconverted olefine

(4) separating from the mixture coming from the epoxidation step (3), olefine oxide and a carboxylic acid solution

(5) recycling the separated carboxylic acid solution of step (4) to provide at least a portion of the carboxylic acid used in step (1), the improvement comprising:

(6) employing as the inert organic solvent, a mixture of solvents which does not form an azeotrope with the olefine to be epoxidized or with the olefine oxide, and which comprises:

(a) from 5 to 60% by weight of a volatile solvent, the boiling point of which is lower than the boiling point of the olefine oxide, and which forms with water a heterogeneous azeotrope and which serves to remove, by azeotropic distillation, the water in at least one of the reaction mixtures chosen from the reaction mixture containing percarboxylic acid in step (1) and the reaction mixture coming from the epoxidation reactor in step (3) and containing the olefine oxide,

said volatile solvent being selected from the group consisting of solvents capable of forming, with water, a heterogeneous azeotrope with a minimum boiling point which is lower than the boiling point of other constituents and other possible azeotropes present in said reaction mixture, under equivalent pressure conditions,

(b) a solvent of low volatility, the boiling point of which is higher than the boiling point of the olefine oxide and which serves as a solvent in the carboxylic acid solution recycled in step (5), and in case the solvent of low volatility is capable of forming an azeotrope with carboxylic acid, the boiling point of this azeotrope is higher than those of the olefine and olefine oxide, and

(c) the solvents being not soluble in water and being not water solvents, the solvents being selected in a manner such that their mixture can dissolve at least 0.05 mol of carboxylic acid per liter, the solvent being selected from among carboxylic acid esters, ethers, halogenohydrocarbons, unsubstituted hydrocarbons, hydrocarbons substituted by nitro groups, nitric acid esters, and non-acid esters of carbonic and phosphoric acids,

step (4) comprises separating from the reaction mixture coming from the epoxidation reactor of step (3), the unconverted olefine, the volatile solvent, the olefine oxide which constitutes the end product, and the solution of carboxylic acid, the solution of carboxylic comprising a solution containing the low-volatility solvent, by subjecting the reaction mixture coming from the epoxidation reactor of step (3) to several successive distillations during which

(a) the uncoverted olefine is separated from a first liquid product containing the volatile solvent, the olefine oxide, the low volatility solvent and the carboxylic acid,

(b) the first liquid product is separated into the volatile solvent and a second liquid containing the olefine oxide, the low volatility solvent and the carboxylic acid, and

(c) the second liquid product is separated into the olefine oxide which constitutes the end product and the solution of carboxylic acid in the low volatility solvent

(7) recycling the volatile solvent separated in step (4)(b) to the peracid fabrication reactor of step (1),

and

(8) removing, by azeotropic distillation with the volatile solvent, the water present in at least one of the mixtures selected from among the reaction mixture containing the percarboxylic acid of step (1) and the reaction mixture coming from the epoxidation reactor of step (3) and containing the olefine oxide.

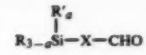
4,424,392

ALDEHYDE CONTAINING HYDROLYZABLE SILANES

Herbert E. Petty, Bethel, Conn., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Mar. 24, 1982, Ser. No. 361,189
Int. Cl.³ C07F 7/04, 7/18
U.S. Cl. 556—436 25 Claims

1. A monoaldehyde containing hydrolyzable silane having the formula



wherein R represents an alkoxy radical having from 1 to 4 carbon atoms, R′ represents a monovalent alkyl radical having from 1 to 4 carbon atoms, X represents a divalent organic bridging group and a has a value of 0 to 2.

4,424,393

PROCESS OF PREPARATION OF SUBSTITUTED DIPHENYL ETHERS

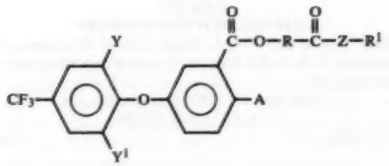
Frederick F. Guzik, Wadsworth; Steven E. Pamer, Rittman, and Sidney B. Richter, Fairlawn, all of Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Aug. 24, 1981, Ser. No. 295,885

Int. Cl.³ C07C *79/46*

U.S. Cl. 560—21 **4 Claims**

1. A process for preparing a compound of the formula:



wherein:

A is nitro,

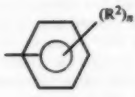
Y is hydrogen or halogen;

Y^1 is hydrogen, halogen, cyano, trifluoromethyl or alkyl containing 1 to 4 carbon atoms;

Z is oxygen or sulfur;

R is alkylene containing 1 to 3 carbon atoms which may be monosubstituted by a substituent selected from alkyl, oxoalkyl or hydroxyalkyl containing 1 to 4 carbon atoms; and

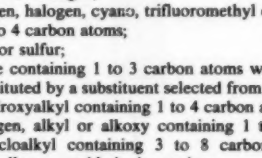
R^1 is hydrogen, alkyl or alkoxy containing 1 to 10 carbon atoms, cycloalkyl containing 3 to 8 carbon atoms, an agromonically acceptable ionic species or



wherein R^2 is selected from halogen, alkyl or alkoxy containing 1 to 10 carbon atoms, cyano, nitro, or trifluoromethyl and n is 0, 1, 2, or 3;

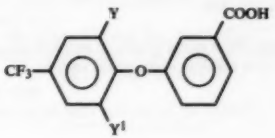
by the steps of:

(a) halogenating in an inert organic liquid reaction medium, at a temperature of from 20° C. to 100° C., and in the presence of a free radical initiator a 3-(2- and/or 6-substituted-4-trifluoromethylphenoxy)-m-toluene compound of the formula:



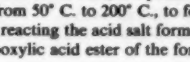
to form the corresponding 3-(2- and/or 6-substituted-4-trifluoromethylphenoxy) benzotrihalide;

(b) hydrolyzing the benzotrihalide of step (a) in the liquid phase with aqueous acetic acid to prepare a substituted benzoic acid compound of the formula:

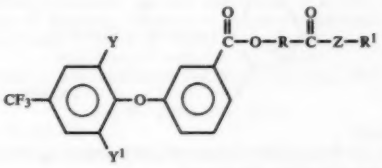


(c) reacting the substituted benzoic acid of step (b) with an alkali metal base, in a polar organic solvent, at a temperature from 50° C. to 200° C., to form the corresponding acid salt;

(d) reacting the acid salt formed in step (c) with an γ-halocarboxylic acid ester of the formula:



wherein Hal is halogen, in a polar organic solvent and a temperature of from 50° C. to 200° C., to form a compound of the formula:



(e) converting the compound prepared in step (d) to the corresponding 2-nitro derivative by nitration, at a temperature from 0° C. to 70° C., with a nitrating agent selected from nitric acid, nitric acid/sulfuric acid, potassium nitrate/sulfuric acid, or nitric acid/sulfuric acid/acetic anhydride.

4,424,394

MANUFACTURE OF ARYLACETIC ACIDS AND THEIR ESTERS

Kurt Schneider, Bad Durkheim; Rudolf Kummer, Frankenthal; Kurt Schwirten, Ludwigshafen, all of Fed. Rep. of Germany; Hans-Dieter Schindler, deceased, late of Frankenthal, Fed. Rep. of Germany; Maria E. Schindler, heir-at-law; Ute Lang, heir-at-law, Neuried, both of Fed. Rep. of Germany, and Rainer Schindler, heir-at-law, Hechendorf, Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

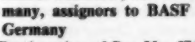
Continuation of Ser. No. 676,572, Apr. 13, 1976, abandoned. This application Nov. 8, 1979, Ser. No. 92,444

Claims priority, application Fed. Rep. of Germany, May 15, 1975, 2521601

Int. Cl.³ C07C *67/36, 69/76, 179/10, 51/00*

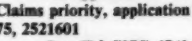
U.S. Cl. 560—105 **11 Claims**

1. In a process for the manufacture of arylacetic acids, and their esters, of the formula I



I

where Ar is aryl, R is hydrogen or a hydrocarbon radical, and n is 1 or 2, by carbonylation of halomethylaryl compounds of the formula II



II

where X is chlorine, bromine or iodine, with carbon monoxide and an iron carbonyl compound as the catalyst and with stoichiometric amounts of an inorganic base or of an alcoholate of an alcohol ROH at a temperature of from about 20° to 120° C. and under a carbon monoxide pressure of from about 1 to 100

bars, the improvement which comprises using as said iron carbonyl compound a compound of the formula III

$$M^+[Fe(CO)_3NO]^- \quad \text{III}$$

where M is an alkali metal cation or ammonium cation or one equivalent of an alkaline earth metal cation.

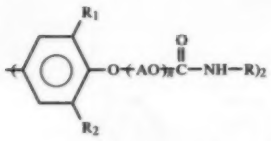
4,424,395

CARBAMATES OF BIPHENYLS

Robert M. Strom, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Mar. 11, 1982, Ser. No. 357,345
Int. Cl.³ C07C *125/075, 125/073*
U.S. Cl. 560—133 **6 Claims**

1. A compound corresponding to the formula:



wherein:

R_1 and R_2 are selected from the group consisting of hydrogen, C_{1-4} alkyl, and phenyl;

A each occurrence is independently a C_{2-4} vicinal alkylene group;

n is an integer from zero to about 20; and

R is an ethylenically unsaturated aliphatic moiety selected from the group consisting of $—CR'=CH_2$ and $—CH_2CH_2OC(O)CR'=CH_2$ where R' is hydrogen or methyl.

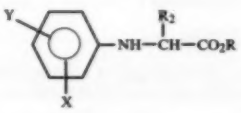
4,424,396

PROCESS FOR THE PREPARATION SUBSTITUTED ANILINO ACIDS

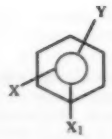
R. Simon-Bierenbaum, Buffalo, N.Y.; Ernest W. Ertley, Mission Viejo; Frederick J. Goetz, Santa Ana, both of, CA, and David Y. Tang, Tonawanda, N.Y., assignors to Occidental Chemical Corporation, Niagara Falls, N.Y.

Filed Jul. 21, 1982, Ser. No. 400,219
Int. Cl.³ C07C *99/00*
U.S. Cl. 562—456 **30 Claims**

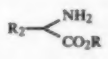
1. A process for the preparation of anilino acids of the formula



where R is H or a metal cation; R_2 is H or alkyl of 1 to 5 carbon atoms, lower alkenyl of 2 to 5 carbon atoms, lower haloalkyl of 1–4 carbon atoms, lower haloalkenyl of 2 to 4 carbon atoms, or lower cycloalkyl of 3 or 4 carbon atoms, Y is hydrogen, chloro, methyl group or trifluoromethyl group, and X is hydrogen chloro, or fluoro, which comprises reacting an aryl halide of the formula



wherein X^1 is chloro or fluoro and X and Y are as defined above with the proviso that when X^1 is chloro, X is hydrogen or chloro, and when X and Y are both chloro, X^1 is fluoro, with an α-amino acid compound of the formula



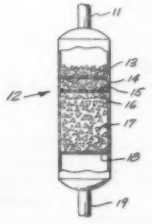
wherein R and R_2 are as defined above.

4,424,397

FORMALDEHYDE PROCESS

David J. Hoene, and John L. Riggs, both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Sep. 27, 1982, Ser. No. 425,049
Int. Cl.³ C07C *47/052*
U.S. Cl. 568—473 **5 Claims**



1. In a process of oxidative dehydrogenation of methanol to produce formaldehyde comprising contacting methanol with oxygen at from about 550° to about 750° C. using layers of different size silver crystals as catalyst, the improvement wherein at least one of the layers of silver crystals is separated from the others and supported by a foraminous member formed of 20 to 100 percent by weight gold and the remainder consisting essentially of silver.

4,424,398

PROCESS FOR PREPARATION OF ENERGETIC PLASTICIZERS

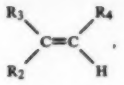
Raymond R. McGuire, Colorado Springs, Colo.; Robert E. Cochoy, Dayton, Ohio, and Scott A. Shackelford, Colorado Springs, Colo., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Sep. 25, 1974, Ser. No. 508,938
Int. Cl.³ C07C *79/343, 76/02;* C06B *25/00*
U.S. Cl. 568—589 **10 Claims**

1. A process for synthesizing energetic plasticizers and precursors for binder systems which comprises reacting, in the presence of a catalytic amount of mercuric or mercurous sulfate, an alcohol selected from the group consisting of 2-fluoro-2,2-dinitroethanol, 2,2-dinitro-1,3-propane diol and 2,2,2-trinitroethanol with an unsaturated compound selected from the group of compounds having the following formulas:

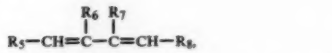
(1) RO—C≡C—R_1, where R is alkyl, ethynyl or aryl and R_1 is hydrogen, alkyl or aryl;

(2)



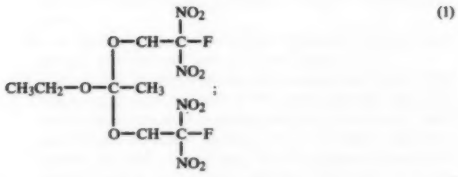
where R_2 is hydrogen or alkyl, R_3 is alkyl ether, aryl ether or vinyl ether when R_2 is hydrogen, and R_3 is alkyl, aryl, alkyl ether, aryl ether or vinyl ether when R_2 is alkyl and R_4 is hydrogen or alkyl; and

(3)

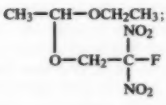


where R_5, R_6, R_7 and R_8 are hydrogen or alkyl, the mole ratio of alcohol to unsaturated compound ranging from 1:1 to 1:6 and the reaction being conducted in a solvent which is inert to the alcohol and unsaturated compound at a temperature ranging from about room temperature to reflux temperature for a period ranging from about 4 to 48 hours.

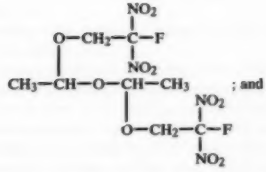
10. As a new composition of matter, a compound selected from the group of compounds having the following formulas:



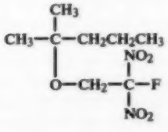
(1)



(2)



(3)



(4)

4,424,399

UNSATURATED FATTY ALCOHOLS AND METHOD OF PREPARING THEM

Didier Morel, Lyons, France, assignor to Rhone-Poulenc Industries, Paris, France

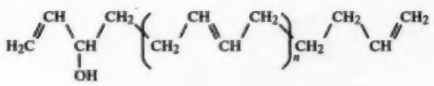
Filed Sep. 9, 1980, Ser. No. 185,593

Claims priority, application France, Sep. 14, 1979, 79 22976

Int. Cl.³ C07C *33/02*

U.S. Cl. 568—840 **3 Claims**

1. An unsaturated fatty alcohol of the formula:



in which n=2 or 4.

4,424,400

OLIGOISOBUTYLCYCLOHEXANE, A PROCESS FOR ITS PREPARATION AND ITS USE

Karl-Heinz Heutschel, and Rolf Dhein, both of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

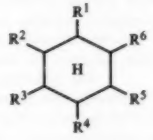
Filed Mar. 13, 1981, Ser. No. 243,418

Claims priority, application Fed. Rep. of Germany, Mar. 14, 1980, 3009848

Int. Cl.³ C07C *5/00, 13/00*

U.S. Cl. 585—20 **9 Claims**

1. An oligoisobutylcyclohexane of the formula:



wherein

R^1–R^5 are identical or different and independently denote hydrogen, a C_1–C_4-alkyl group, C_1–C_4-alkoxy group or a C_1–C_4-alkylthio substituent and R^6 denotes a branched chain C_{12}–C_{40}-alkyl group of trimeric to decameric isobutene.

4,424,401

AROMATIZATION OF ACETYLENE

Noam White, Elsternwick; Douglas A. Kagi, Windsor; Jack G. Creer, Upwey, and Peter Tsai, Parkville, all of Australia, assignors to The Broken Hill Proprietary Company Limited; Commonwealth Scientific and Industrial Research Organisation, all of, Australia

Filed Aug. 5, 1981, Ser. No. 290,317

Claims priority, application Australia, Aug. 12, 1980, PE4987; Jan. 27, 1981, PE7375

Int. Cl.³ C07C *6/00*

U.S. Cl. 585—416 **14 Claims**

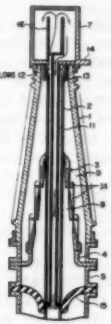
1. A process for producing a hydrocarbon stream containing predominately aromatic compounds, said process comprising contacting a feed stream containing acetylene with a crystalline zeolite catalyst having a silica to alumina molar ratio of 35 to 500 or a zeolite catalyst having a crystal framework structure similar to the ZSM-5 type zeolites and having a silica to alumina molar ratio of at least 100, at a temperature of about 260° to 550° C., a pressure between 0.5 and 50 atmospheres, and a weight hourly space velocity of 0.1 to 20 hr^{-1} to convert the acetylene to a predominately aromatic mixture, wherein the process can tolerate the presence of water and hydrogen in the feed stream.

4,424,402

GAS-INSULATED BUSHING

Hiroshi Murase, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Aug. 31, 1981, Ser. No. 298,186
Claims priority, application Japan, Dec. 19, 1980, 55/178913
Int. Cl.³ H01B *17/36, 17/54, 17/28*
U.S. Cl. 174—16 BH 10 Claims



6. A gas-insulated bushing comprising:

(a) a conductor pipe;

(b) a porcelain insulator tube surrounding said conductor pipe;

(c) a support member for said insulator tube surrounding said conductor pipe and being airtightly fitted to said insulator tube;

(d) an insulator spacer airtightly disposed between said support member and said conductor pipe;

(e) a potential control series-connected capacitor in the form of a stepped tube disposed in the space between said conductor pipe and said porcelain insulator tube, an upper part of said capacitor being airtightly fitted to said conductor pipe and a lower part of said capacitor being airtightly fitted to said support member, whereby the space defined by the outside of said conductor pipe, the inside of said capacitor, the inside of said support member, and the top of said insulator spacer and the space defined by the outside of said conductor pipe, the outside of said capacitor, the inside of said insulator tube, and the outside of said support member constitute independent insulation gas chambers;

(f) a cooling case airtightly fitted to a top portion of said insulator tube;

(g) a terminal electrically connected to said conductor pipe;

(h) a bellows airtightly fitting an upper end portion of said conductor pipe to the bottom of said cooling case; and

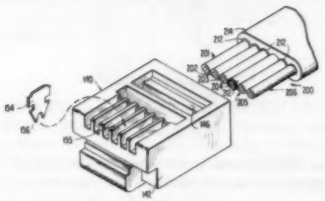
(i) a hollow internal pipe enclosed in said conductor pipe, the upper end of said internal pipe communicating with the interior of said cooling case, the lower end of said internal pipe being open-ended, and the upper end of the space between said internal pipe and said conductor pipe communicating with the interior of said cooling case, whereby, in use, cooling gas circulates up between the inside of said conductor pipe and the outside of said internal pipe, through said cooling case, down through the interior of said internal pipe, and back up between the inside of said conductor pipe and the outside of said internal pipe.

4,424,403

CABLE ASSEMBLY HAVING SHIELDED CONDUCTOR AND METHOD AND APPARATUS FOR TERMINATING SAME

Stephen B. Bogese, II, Roanoke, Va., assignor to Virginia Patent Development Corporation, Roanoke, Va.

Continuation-in-part of Ser. No. 48,523, Jun. 14, 1979, Pat. No. 4,281,212. This application Apr. 29, 1981, Ser. No. 258,728
The portion of the term of this patent subsequent to Jul. 28, 1998, has been disclaimed.
Int. Cl.³ H01B *11/06*
U.S. Cl. 174—36 24 Claims



1. Apparatus, which comprises:

a cable assembly comprising a plurality of shielded wire assemblies, each of said shielded wire assemblies including: conductive wire means for transmitting an electrical signal; insulation means for covering said wire means along its length; and means for shielding said wire means against electrical interference which comprises a thin metal layer of conductive material bonded to said insulation; said plurality of shielded wire assemblies being disposed in laterally adjacent relation, said thin metal layers on adjacent shielded wire assemblies being in electrically conductive contact;

miniature modular plug means for terminating said cable assembly; and

wherein said thin metal layer on at least one of said shielded wire assemblies is stripped back to expose an unshielded end, said unshielded end being received and terminated by said modular plug means, and wherein another of said shielded wire assemblies has a shielded end containing said thin metal layer, said shielded end being received in and terminated by said modular plug.

4,424,404

ENCLOSURE FOR ELECTRICAL COMPONENTS

Brian E. Moore, Greenwood, and Richard D. Buis, Indianapolis, both of Ind., assignors to Endress & Hauser, Inc., Greenwood, Ind.

Filed Oct. 5, 1981, Ser. No. 308,453
Int. Cl.³ H05K *5/04*
U.S. Cl. 174—52 R 8 Claims

1. An enclosure for enclosing electrical components and the like, and protecting the same in hazardous environments comprising:

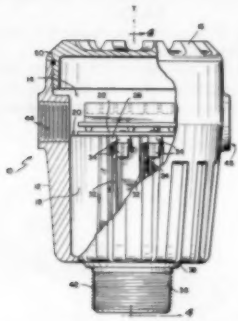
a body having a generally cylindrical cavity therein;

a closure securable to the body for closing the top of the cavity;

a land within the cavity for supporting a first component substantially normal to the axis of the cavity;

at least one pair of longitudinal slots arranged substantially parallel to the axis of the cavity for receiving a second component normal to the first component;

a first internally threaded outlet situated at the bottom of the body substantially axially aligned with the cavity; and



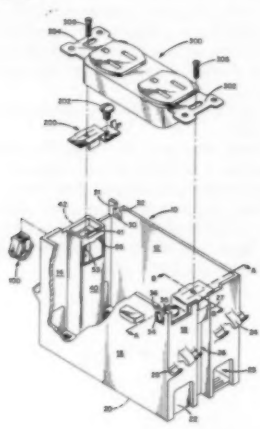
second and third internally threaded outlets located on opposite sides of the body generally above said land.

4,424,405

ELECTRICAL WIRING BOX ARRANGEMENT

William Nattel, Montreal, Canada, assignor to GTE Sylvania Canada Limited, Montreal, Canada

Filed Oct. 13, 1981, Ser. No. 310,711
Int. Cl.³ H02G 3/08
U.S. Cl. 174—53 **12 Claims**



1. An electrical wiring box arrangement including an electrical wiring box and a unitary gripping member for engaging the mounting screw of an electrical wiring device mounted in said wiring box;

said electrical wiring box comprising:

a wall structure of front-to-rear walls and a rear wall therebetween which together define a chamber with a forward facing opening for receiving an electrical wiring device;

said wall structure including support means for seatably receiving and supporting a yoke member of an electrical wiring device;

said wall structure further including mounting means adjacent to said support means for slideably mounting and retaining said gripping member in said wiring box wall structure;

said unitary gripping member comprising:

two opposed body portions each having a face for coacting with said mounting means of said wiring box wall structure;

said opposed body portions each having a curved face for coacting with the mounting screw of said wiring device; and

resilient biasing means for urging said opposed body portions into contact with said mounting means and causing portions of the curved faces of the opposed body portions to be spaced apart by less than the diameter of the mounting screw of said wiring device;

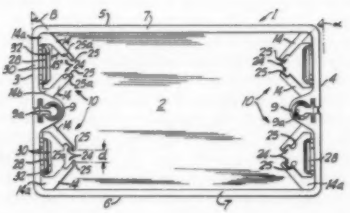
whereby a yoke member of a wiring device mounted in said wiring box is seatably received and supported on said support means, the mounting screw of said wiring device passes through said yoke member and betwen said opposed body portions of said gripping member retained in said wiring box wall structure mounting means into engagement with the portion of the curved faces of the opposed body portions which are spaced apart by less than the diameter of the mounting screw, and said mounting screw is firmly engaged by the cooperative action of said mounting means of said wall structure urging said opposed gripping member body portions toward one another to tightly grip the mounting screw upon turning of the screw.

4,424,406

CABLE ENTRY PORT MEANS FOR ELECTRICAL OUTLET BOX

Thomas S. Slater, Port Washington, and Wade R. Bowden, Jr., Northport, both of N.Y., assignors to Slater Electric Inc., Glen Cove, N.Y.

Continuation of Ser. No. 22,993, Mar. 22, 1979, abandoned, which is a continuation-in-part of Ser. No. 879,767, Feb. 21, 1978, Pat. No. 4,366,343. This application Jul. 30, 1981, Ser. No. 288,431
Int. Cl.³ H02G 3/08
U.S. Cl. 174—65 R **12 Claims**



1. In an electrical outlet box having a wall structure providing front-to-rear walls and a bottom wall interconnected therebetween, the front-to-rear walls and bottom wall defining a chamber within the wall structure which opens through the front of the box, the improvement therein which comprises, cable entry port means in said wall structure for the passage of an electrical cable into said box chamber, said cable entry port means including:

at least one aperture formed in said wall structure at the intersection of said front-to-rear walls and said bottom wall, said aperture includes

a first generally rectangular opening extending upwardly into a first front-to-rear wall portion of said front-to-rear walls from said bottom wall, and

a second opening facing the front opening of said box formed in the general shape of a right triangle, the hypotenuse of said right triangle shaped opening extending from a longitudinally extending side rim of said first rectangular opening to a second front-to-rear wall portion of said front-to-rear walls,

said first and second front-to-rear wall portions comprising intersecting end and side walls, respectively, of said

outlet box, and said hypotenuse extending between said side wall and the longitudinally extending side rim of said first rectangular opening remote from said side wall; and

closure panel means for said entry port means including a single closure panel extending angularly inwardly from said longitudinally extending side rim of said first rectangular opening remote from said side wall portion substantially along said hypotenuse of said second right triangle opening formed in said bottom wall.

4,424,407

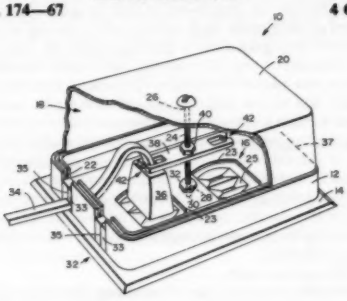
ELECTRICAL OUTLET SAFETY COVER

Mark J. Barbic, 4955 Mayfield Ct., San Jose, Calif. 95130

Filed Nov. 30, 1981, Ser. No. 325,736

Int. Cl.³ H02G *3/18*

U.S. Cl. 174—67 **4 Claims**



1. An electrical outlet safety cover, which comprises an enclosure dimensioned and configured to fit over the electrical outlet and define a closed space of sufficient size to include a plug inserted in the outlet, said enclosure defining an opening through which an electrical cord attached to the plug may pass, a screw threaded to mate with screw threads for fastening the faceplate to the electrical outlet, for removably fastening said enclosure to a faceplate of the electrical outlet, said screw having a pivotally mounted head for releasably fastening the enclosure to the faceplate, said enclosure being formed from a deformable material, deformation of the enclosure toward the faceplate allowing the pivotal head of the screw to be pivoted for removal of said enclosure from the faceplate, and said enclosure when free of deformation preventing the head of said screw from being pivoted for removal of said enclosure from the faceplate.

4,424,408

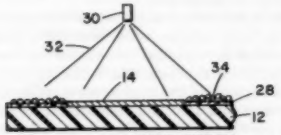
HIGH TEMPERATURE CIRCUIT BOARD

Vito D. Elarde, 6429 Lance Ct., San Diego, Calif. 92120

Continuation of Ser. No. 96,402, Nov. 21, 1979, abandoned, which is a continuation of Ser. No. 873,738, Jan. 30, 1978, abandoned, which is a continuation of Ser. No. 625,466, Oct. 24, 1975, abandoned. This application Sep. 4, 1981, Ser. No. 299,345

Int. Cl.³ H05K *1/09, 3/14*

U.S. Cl. 174—68.5 **2 Claims**



FLAME SPRAY

1. A high temperature performance circuit board comprising:

an insulating board of high temperature resistant material, said high temperature resistant material selected from the group consisting of polyimide, modified polyimide and epoxy glass bonded laminate, and

a metal circuit of conductive metal flame sprayed on said board,

said metal circuit comprising a first layer of aluminum, and a second metal layer selected from the group consisting of nickel, copper, silver solder brazed alloy comprising about 20% to 45% silver and 30% to 52.5% copper and 22.5% to 35% zinc, an alloy of about 5% to 15% silver and 80% to 89% copper and 5% to 6% phosphorous, an alloy of about 5% to 9% silver and 53% to 58% copper and 37% to 38% zinc, an alloy of about 7% silver and 85% copper and 8% tin, an alloy of about 60% copper and 40% zinc, and an alloy of about 50% copper and 40% zinc and 10% nickel.

4,424,409

THIN-FILM ELECTRONIC CIRCUIT UNIT

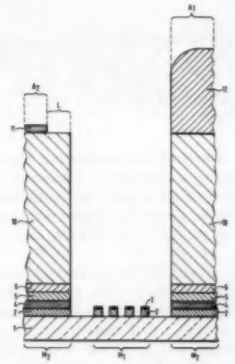
Klaus Küttner, Stuttgart, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Dec. 28, 1981, Ser. No. 335,165

Claims priority, application Fed. Rep. of Germany, Jan. 15, 1981, 3101032; Sep. 12, 1981, 3136198

Int. Cl.³ H05K *1/09*

U.S. Cl. 174—68.5 **3 Claims**



1. A thin-film electronic circuit unit carried on a substrate (1) plate of insulation material comprising:

a first valve metal layer (2) of a thickness order of magnitude from one-tenth to several tenths of 1 μm located directly on said substrate and partly covering said substrate in first (M_1) and second (M_2) patterns which interconnect in at least one location and form first (M_1) and second (M_2) regions of said first valve metal layer (2), said first region thereof defining circuit component elements of said circuit unit and said second region thereof defining connection paths (L) and contact areas (A_1,A_2) of said circuit unit;

metallization of the thickness order of magnitude from one-tenth to several tenths of 1 μm and constituted by a single layer of nickel (50), superposed on said second region (M_2) of said valve metal layer;

a layer of copper (10) at least 2 μm thick of a metal that does not melt at temperatures to which it may be exposed in soldering operations performed in making connections to said circuit unit, superposed on said metallization (4,5,6;50), said copper layer serving to enhance conductivity of conducting paths and to reinforce said metallization to preserve the integrity of said conducting paths and contact areas and being uncovered in the portion of said second region (M_2) serving to provide electrical connection paths;

a layer of soft solder (12) covering said copper layer only in the portion of said second region (M_2) serving to provide partic-

ular electrical contact areas (A_1) for facilitating the soldering thereto of components by the reflow solder process, and a gold layer (11) in the portion of said second region (M_2) serving to provide particular electrical contact areas (A_2) for facilitating the electrical connection of components by chip-and-wire-bonding technique.

4,424,410

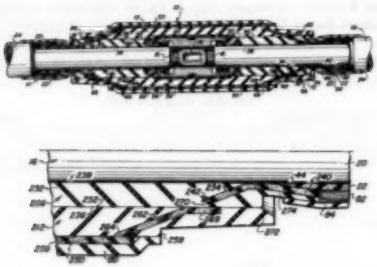
SPLICE CONNECTOR WITH SHIELD BREAK

Nelson W. Edgerton, Martinsville, N.J., assignor to Amerace Corporation, New York, N.Y.

Continuation of Ser. No. 174,867, Aug. 4, 1980, abandoned, which is a continuation-in-part of Ser. No. 970,190, Dec. 18, 1978, abandoned. This application Sep. 16, 1982, Ser. No. 418,810

Int. Cl.³ H02G *15/184*

U.S. Cl. 174—73 R **18 Claims**



1. A splice connector for connecting high voltage cables, each cable having a conductor, insulation surrounding the conductor, and a shield around the insulation, the connector including means for connecting bared portions of the conductors together at the terminus of each cable, said connector comprising:

a pair of adaptor sleeves for placement of one adaptor sleeve at the terminus of each cable, each adaptor sleeve having an internal surface for engaging a corresponding cable, an external surface, a first sleeve part of insulating elastomeric material and a second sleeve part of conductive elastomeric material integral with the first sleeve part, the second sleeve part including a first end portion located adjacent the internal surface for axially-overlapping juxtaposition with a terminal end portion of the shield of the cable when the adaptor sleeve is placed at the terminus of that cable and a second end portion located axially opposite the first end portion in axially-overlapping juxtaposition with the external surface of the adaptor sleeve;

a housing for placement over the adaptor sleeves, the housing having an inner surface for engaging each adaptor sleeve, the housing including axially opposite ends, a first tubular housing part of insulating elastomeric material extending axially between the opposite ends of the housing and having an outer surface for receiving a second tubular housing part of conductive material for surrounding the first tubular housing part intermediate the opposite ends of the housing in integral engagement with the first tubular housing part, and third tubular housing parts of conductive elastomeric material integral with the first tubular housing part adjacent each said opposite end, each third tubular housing part having a first end portion located in axially-overlapping juxtaposition with a corresponding end portion of the outer surface of the first tubular housing part and a second end portion located adjacent a corresponding end portion of the inner surface for axially-overlapping juxtaposition with a corresponding adaptor sleeve second end portion when the housing is in place over the adaptor sleeves with the first tubular housing part surrounding the connected bared portions of the conductors; and

a tubular skirt part of insulating elastomeric material interposed radially between at least two of the axially-overlapping juxtaposed end portions located adjacent one of the opposite ends of the housing when the housing is in place over the adaptor sleeves and the adaptor sleeves are in place over each cable terminus such that said two of the axially-overlapping juxtaposed end portions are electrically insulated from one another to provide a shield break at the connector.

7. For use in a splice connector for connecting high voltage cables, each cable having a conductor, insulation surrounding the conductor, and a shield around the insulation, the connector including means for connecting bared portions of the conductors together at the terminus of each cable, and a pair of adaptor sleeves for placement of one adaptor sleeve at the terminus of each cable, each adaptor sleeve having an internal surface for engaging a corresponding cable, an external surface, a first sleeve part of insulating elastomeric material and a second sleeve part of conductive elastomeric material integral with the first sleeve part, the second sleeve part including a first end portion located adjacent the internal surface for axially-overlapping juxtaposition with a terminal and portion of the shield of the cable when the adaptor sleeve is placed at the terminus of that cable and a second end portion located axially opposite the first end portion for axially-overlapping juxtaposition with the external surface of the adaptor sleeve:

a housing for placement over the adaptor sleeves, the housing including

axially opposite ends;

a first tubular housing part of insulating elastomeric material extending axially between the opposite ends of the housing and having an inner surface for engaging the adaptor sleeves when the housing is in place over the adaptor sleeves and an outer surface for receiving a second tubular housing part of conductive material for surrounding the first tubular housing part intermediate the opposite ends of the housing in integral engagement with the first tubular housing part;

third tubular housing parts of conductive elastomeric material integral with the first tubular housing part adjacent each said opposite end, each third tubular housing part having a first end portion, the first end portion of one of the third tubular housing parts being spaced radially inwardly from the outer surface of the first tubular housing part, and a second end portion extending to the inner surface of the housing for contact with a corresponding adaptor sleeve second end portion when the housing is in place over the adaptor sleeves with the first tubular housing part surrounding the connected bared portions of the conductors; and a tubular skirt part of insulating elastomeric material interposed radially between the outer surface of the first tubular housing part and the first end portion of said one of the third tubular housing parts such that said one of the third tubular housing parts is electrically insulated from the outer surface of the housing and will be electrically insulated from the second tubular housing part when the second tubular housing part is in place over the outer surface, whereby a shield break is provided at the connector.

13. For use in providing a shield break in a splice connector for connecting high voltage cables, each cable having a conductor, insulation surrounding the conductor, and a shield around the insulation, the connector including means for connecting bared portions of the conductors together at the terminus of each cable, and a housing for placement over the connected bared portions of the conductors and over the terminus of each cable:

an adaptor sleeve for placement at the terminus of either cable, between the cable and the housing, the adaptor sleeve having

an internal surface for engaging the cable;

an external surface for being engaged by the housing when

the housing is placed over the terminus of the cable and over the adaptor sleeve;

a first sleeve part of insulating elastomeric material;

a second sleeve part of conductive elastomeric material integral with the first sleeve part, the second sleeve part including a first end portion located at the internal surface for axially-overlapping juxtaposition and contact with a terminal end portion of the shield of the cable when the adaptor sleeve is placed at the terminus of that cable, and a second end portion located adjacent the external surface for axially-overlapping juxtaposition with the housing when the housing is placed over the adaptor sleeve; and

a tubular skirt part of insulating elastomeric material interposed radially between the second end portion of the second sleeve part and the external surface of the adaptor sleeve such that the second end portion is electrically insulated from the external surface and will be electrically insulated from the housing when the housing is placed over the adaptor sleeve, whereby a shield break is provided at the connector.

4,424,411

CONNECTOR

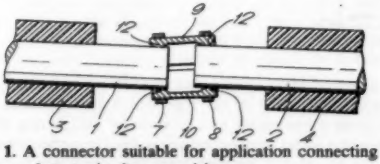
Robin J. T. Clabburn, Menlo Park, Calif., assignor to Raychem Limited, London, England

Filed Dec. 6, 1979, Ser. No. 100,985

Claims priority, application United Kingdom, Dec. 6, 1978, 47370/78

Int. Cl.³ H01R *4/58*

U.S. Cl. 174—84 R **8 Claims**



1. A connector suitable for application connecting at least two substrates in situ comprising:

a plurality of insert members capable of being positioned to form a generally tubular assembly; at least two substantially convex contact portions on an internal surface of said insert members; and at least two heat shrinkable drivers each sized to be positioned about an external surface of said insert members, each said driver when positioned over said insert members and substantially over said contact portions applying a force substantially over said contact portions and driving said insert members together upon recovery to form an integral structure with said insert members and at least two substrates when said connector is positioned to form a generally tubular assembly.

4,424,412

SPLICE CASE END CLOSURE ASSEMBLY AND SPLICE CASE INCLUDING SAME

Erwin H. Goetter, Chesterland, and Ralph B. Siter, Mayfield Heights, both of Ohio, assignors to Preformed Line Products Company, Cleveland, Ohio

Filed Dec. 24, 1981, Ser. No. 334,423

Int. Cl.³ H02G *15/113, 15/117*

U.S. Cl. 174—92 **20 Claims**

1. A vault end closure assembly adapted to receive a plurality of linear bodies in an environmentally sealed relationship, the end closure assembly comprising:

an inner end plate having an inner face, an outer face and a plurality of apertures extending through said inner end plate between the inner and outer faces thereof;

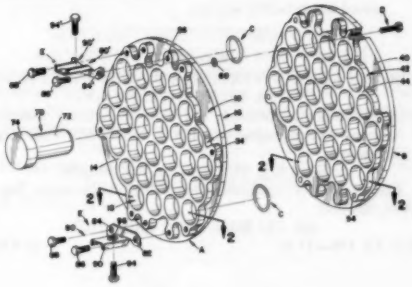
an outer end plate having an inner face, an outer face and a plurality of apertures extending therethrough between the outer end plate inner and outer faces, the apertures in said inner and outer plates being located for registry with each other;

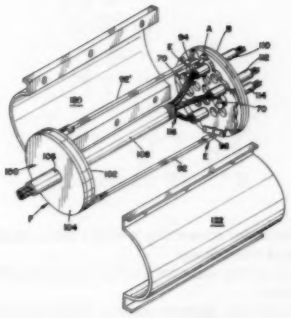
a plurality of annular recesses disposed in at least one of the inner end plate outer face and the outer end plate inner face in a surrounding relationship with said apertures;

body means passing through each of said plurality of registered apertures in said inner and outer end plates;

compressible gasket means at least partially received in said annular recesses; and,

means for drawing the inner and outer end plates axially toward each other in a controlled manner such that said gasket means is compressed longitudinally and expanded radially into the apertures, whereby seals will be formed between the gasket means and said body means which passes through each pair of said registered apertures in the inner and outer plates and between the gasket means and the inner and outer plates to establish the environmentally sealed relationship.





11. A splice case for receiving a plurality of linear bodies to be spliced and for protecting the splice from the environment, said splice case comprising:

a first end closure assembly comprising an inner end plate having an inner face, an outer face and a plurality of apertures extending axially therethrough; and outer end plate having an inner face disposed contiguous with the inner end plate outer face, an outer face and a plurality of apertures extending axially therethrough in registry with the inner end plate apertures; a plurality of annular recesses disposed in at least one of the inner end plate outer face and the outer end plate inner face; gasket means at least partially received in the recesses; and, means for drawing the inner and outer end plates axially toward each other such that the gasket means is compressed longitudinally and expanded radially into the inner and outer end plate apertures, whereby said gasket means is adapted to be placed in an environmental sealing relationship with first

body means extending through each pair of said registered apertures in said inner and outer end plates;

a second end closure assembly having an inner face, an outer face, and at least one aperture extending axially thereof between said inner and outer faces adapted to receive in an environmental sealing relationship second body means adapted for extending axially therethrough;

at least a pair of elongated members extending axially of and operatively connected with the first and second end closure assemblies for retaining said inner end plate inner face and said second end closure assembly inner face in a generally predetermined laterally spaced apart relationship; and,

cover members closely received circumferentially of said first and second end closure assemblies for defining an enclosed splice chamber therebetween, said cover members being releasably disposed in an environmental sealing relationship with each other and with said end closure assemblies whereby the interior of the splice case is maintained hermetically sealed.

4,424,413

CIRCUIT FOR CONVERTING A BINARY INPUT SIGNAL INTO A TELEGRAPH SIGNAL

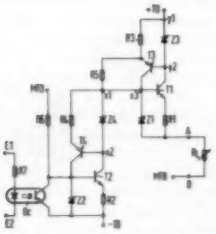
Norbert Skobranek, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 17, 1981, Ser. No. 303,096

Claims priority, application Fed. Rep. of Germany, Sep. 24, 1980, 3035999

Int. Cl.³ H04L *15/00*; H04B *1/02*

U.S. Cl. 178—17 R **11 Claims**



1. A circuit for converting a binary input signal into a telegraph signal comprising:

first and second constant current sources each including a transistor,

said constant current sources being connected respectively at terminals to operating voltages of opposite polarity;

two bias voltage means each having a plurality of bias voltage elements for respectively biasing the transistors in said constant current sources;

an input signal supply device for receiving said binary input signal and supplying said input signal to the base of at least one of said transistors in said constant current sources; and

a telegraph signal output to which each of said constant current sources are connected,

the transistor in said first constant current source and the bias means associated therewith being completely disposed between one of said operating voltage terminals and said signal output,

and the transistor in said second constant current source and the bias means associated therewith being completely disposed between the other of said operating voltage terminals and one of the bias voltage elements of said bias voltage means associated with said first constant current source,

said one of said bias voltage elements being connected to said signal output.

4,424,414

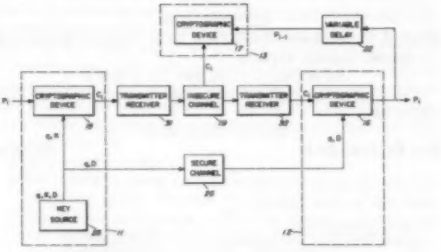
EXPONENTIATION CRYPTOGRAPHIC APPARATUS AND METHOD

Martin E. Hellman, Stanford, Calif., and Stephen C. Pohlig, Acton, Mass., assignors to Board of Trustees of the Leland Stanford Junior University, Stanford, Calif.

Filed May 1, 1978, Ser. No. 901,770

Int. Cl.³ H04K *9/00*

U.S. Cl. 178—22.11 **2 Claims**



1. In a method of communicating securely over an insecure communication channel of the type which communicates a message from a transmitter to a receiver by enciphering the message with a secret enciphering key at the transmitter, transmitting the enciphered message from the transmitter to the receiver, and deciphering the enciphered message with a secret deciphering key at the receiver, the improvement characterized by:

generating the secret deciphering key as the multiplicative inverse, in modular arithmetic, of the secret enciphering key;

generating the enciphered message by exponentiating, in modular arithmetic, the message with the secret enciphering key;

deciphering the enciphered message by exponentiating, in modular arithmetic, the enciphered message with the secret deciphering key, wherein the step of:

generating the secret deciphering key is performed by generating a secret deciphering key D, such that

$$D=K^{-1}(\text{mod } q-1)$$

where $1 \leqq D \leqq q-2$, q is a prime number, and the secret enciphering key K is an independent random number chosen uniformly from the set of integers (1, 2, . . . q−2) which are relatively prime to q−1;

generating the enciphered message is performed by generating an enciphered message C, such that

$$C=P^K(\text{mod } q)$$

where P is the message; and

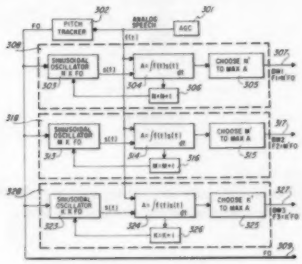
deciphering the enciphered message is performed by generating the message P, where

$$P=C^D(\text{mod } q).$$

4,424,415
FORMANT TRACKER

Kun-Shan Lin, Lubbock, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 3, 1981, Ser. No. 289,603
Int. Cl.³ G10L 1/00
U.S. Cl. 381—39 16 Claims



1. A formant tracker for receiving an analog signal, said formant tracker comprising:

means for tracking a pitch associated with the analog signal and generating a fundamental frequency therefrom; and

means operably coupled to the output of said pitch tracking means for receiving the fundamental frequency of the analog signal to determine at least one formant within a frequency spectrum in which the analog signal is found, said formant determining means including

means establishing an integer set including a plurality of integers associated with at least a selected frequency range containing said at least one formant and within said frequency spectrum in which the analog signal is found, and

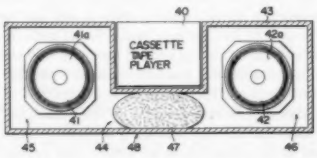
means for establishing within said integer set over the plurality of integers contained therein an optimal integer for said selected frequency range within said frequency spectrum from said integer set and a bandwidth associated with said optimal integer;

said formant determining means generating said at least one formant in response to the product of said optimal integer and said fundamental frequency.

4,424,416
ACOUSTIC REPRODUCING APPARATUS

Norio Fukuoka, Hachioji, Japan, assignor to Olympus Optical Company Ltd., Tokyo, Japan

Filed Jun. 1, 1981, Ser. No. 269,347
Claims priority, application Japan, Aug. 22, 1980, 55-118771[U]
Int. Cl.³ H04R 5/02
U.S. Cl. 381—24 1 Claim



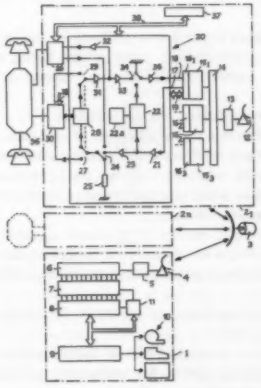
1. An acoustic reproducing apparatus including first and second channels connected to first and second speakers, comprising:

said first and second speakers being disposed in a housing, said housing having a sound path through which said first and second speakers are acoustically coupled, said sound path having sound absorbing material disposed therein to form a low pass filter for absorbing the high frequency signal component from said first and second speakers, said low pass filter operating to add the low frequency signal component of said first channel to said second channel, said low pass filter operating to add the low frequency signal component of said second channel to said first channel, whereby the low frequency signal components of said first and second channels are combined to produce a composite low frequency signal with greater amplitude which is reproduced in phase by each of said first and second speakers.

4,424,417
METHOD FOR ESTABLISHING DAMA RADIOTELEPHONE CONVERSATIONS BY SINGLE-SPAN SATELLITE TRANSMISSION

Christian Chavey, and Pierre Lagoutte, both of Boulogne Billancourt, France, assignors to LMT Radio Professionnelle, Boulogne Billan Court, France

Filed Jul. 31, 1981, Ser. No. 289,074
Claims priority, application France, Aug. 6, 1980, 80 17355
Int. Cl.³ H04M 11/00; H04B 7/19
U.S. Cl. 179—2 E 8 Claims



7. A communication system for establishing DAMA radiotelephone conversations by single-span satellite transmission between subscribers of a plurality of peripheral stations each having intermediate-frequency modulators/demodulators of the single-channel-per-carrier (SCPC) type, telephone junctor circuits and ringer circuits and a central station comprising:

means at the central station for transmitting a synchronization signal, at least within the time intervals during which the peripheral stations are capable of calling the central station, on a specialized unidirectional channel common to each of said peripheral stations,

means at the central station for inserting messages in said synchronization signal,

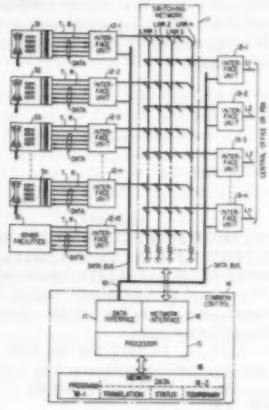
DAMA circuit means at each peripheral station coupled to said modulators/demodulators and said junctor and ringer circuits for controlling and interfacing said SCPC channels for causing randomly presented requests by said peripheral stations to be transmitted at a given time with respect to said synchronization signal to avoid conflicts arising from simultaneous call demands.

4,424,418

COMMUNICATION SYSTEM PARKHOLD CONFERENCING

George E. Moore, Tinton Falls, and Vincent A. Muehter, Towaco, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 18, 1981, Ser. No. 264,569
Int. Cl.³ H04M *3/56*
U.S. Cl. 179—18 BC **10 Claims**



1. A conference control arrangement for use in a communication system, said control arrangement being operable for establishing a conference connection among at least three stations,

said control arrangement characterized by

means responsive to a signal from one of said stations involved in an established conference for placing said conference in a parkhold mode whereby said one station is removed from said conference while said conference continues between the other conference stations,

means responsive to receipt of a second signal from said removed one station for directly reconnecting said one station to said established conference at the option of said one station,

means for accepting from any station in the system an identification signal, and

means responsive to receipt of said identification signal from any said signaling station for connecting said signaling station to said established conference.

4,424,419

ELECTRET MICROPHONE SHIELD

Guy J. Chaput, Carleton Place; Edward M. Sich, Nepean, and Beverley W. T. Gumb, London, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Oct. 19, 1981, Ser. No. 312,375
Int. Cl.³ H04R *19/04*
U.S. Cl. 179—111 E **9 Claims**

1. In an electret microphone comprising a casing and an electret element within the casing for producing an electrical signal corresponding to acoustic vibration passing into the casing through a passage therein, the improvement comprising a conducting film blocking the passage, the conducting film transparent to said acoustic vibration and impermeable to

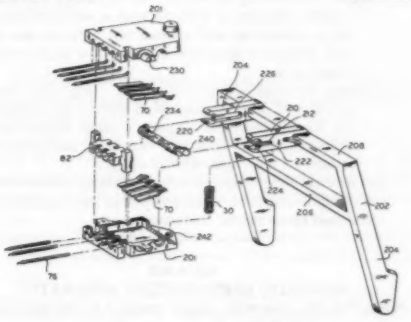
moisture, the film electrically contacting a fixed potential body whereby to fix the potential of the conducting film.

4,424,420

PIVOTAL SWITCH OPERATING MECHANISM

Steve W. Haskins, Corinth, Miss., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Sep. 14, 1981, Ser. No. 301,462
Int. Cl.³ H01H *9/04, 21/02;* H04M *1/08*
U.S. Cl. 179—164 **9 Claims**



9. A hookswitch mechanism for a telephone instrument comprising:

a camshaft rotatable through an arc upon movement of an operating means;

at least one pair of leaf springs; and

at least one cam mounted on said camshaft disposed between and adjacent a contact end of each of said leaf springs of said one pair of leaf springs, said contact ends of said one pair of leaf springs being spaced apart by said one cam in a first position of said camshaft and said contact ends of said one pair of leaf springs being in electrical contact with each other in a second position of said camshaft;

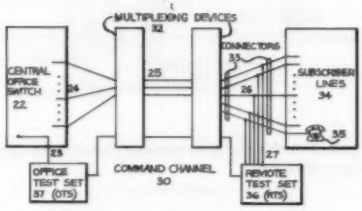
each of said leaf springs including a crested ridge formed thereon at an acute angle to a base line parallel to the length of said leaf springs to provide a contacting surface at said contact end thereof, said contacting surfaces of said pair of leaf springs forming a cross shaped contact in said second position of said camshaft; and

said camshaft having eccentric journals at the ends thereof meeting with said operating means for producing enhanced rotation of said camshaft.

4,424,421
APPARATUS FOR TESTING SUBSCRIBER CARRIER SYSTEMS

Todd V. Townsend, Reno, and Thomas Streenan, Carson City, both of Nev., assignors to Lynch Communication Systems, Inc., Reno, Nev.

Filed Oct. 23, 1981, Ser. No. 314,212
Int. Cl.³ H04M 3/30, 3/32
U.S. Cl. 179—175.3 R 19 Claims



1. A system for testing telephone subscriber lines from a central office, the central office coupled to a central multiplexing means, the central multiplexing means coupled through trunks to a remote multiplexing means and the remote multiplexing means coupled through subscriber lines to subscriber equipment, comprising:

(a) a central office test set connected to said central office by a designated line;

(b) a remote test set coupled to said remote multiplexing means, said central multiplexing means and said central office test set through a dedicated trunk line;

(c) means at said remote test set for communication with each of the subscriber lines;

(d) means at said central office test set for establishing a test command through said dedicated trunk line to said remotely located test set and addressed for specific one of said subscriber lines;

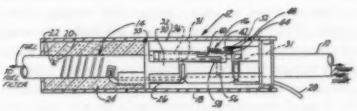
(e) means at said remote test set for transmitting test results to said central office; and

(f) means for displaying said test results at said central office.

4,424,422
THERMOSTATICALLY CONTROLLED ELECTRIC DIESEL FUEL HEATER

Lon E. Bell, and William P. Gruber, both of Altadena, Calif., assignors to Technar, Inc., Arcadia, Calif.

Continuation-in-part of Ser. No. 174,916, Aug. 4, 1980, abandoned. This application Aug. 3, 1981, Ser. No. 289,166
Int. Cl.³ H05B 1/02; H01H 37/60; F02M 31/12; F24H 1/10
U.S. Cl. 219—205 6 Claims



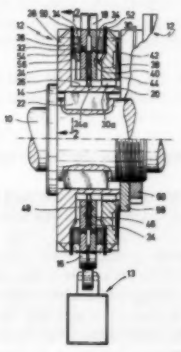
1. A fuel heater for raising the temperature of diesel fuel passing through a fuel filter comprising:

a heat conductive tube for transmitting the fuel to a filter, a resistance heating element in thermal contact with the tube for transmitting heat to the tube and fuel therein, a thermostat including a thermal element, a snap-acting switch mounted on and secured to the tube adjacent the heating element, the thermal element being spaced from the heating element in a direction upstream of the heating element, the switch when closed completing an electrical circuit through the heating element, the thermal element when heated above a predetermined temperature opening the switch and breaking said circuit, the thermostat including a molded plastic frame having a central opening therethrough for receiving the tube, the thermal element including an elongated bimetal member secured at one end to the frame, the bimetal member extending lengthwise of the tube and immediately adjacent thereto, the bimetal member bending away from the tube with increase in temperature to open the switch.

4,424,423
SWITCHING MECHANISM

Eduard Hermle, Kirchstrasse 20, D-7303 Neuhausen a.F., Fed. Rep. of Germany

Filed Oct. 5, 1981, Ser. No. 308,806
Claims priority, application Fed. Rep. of Germany, Oct. 23, 1980, 3039968
Int. Cl.³ H01H 3/42
U.S. Cl. 200—31 R 3 Claims



1. In a switching mechanism having a rotatable control shaft and several switches disposed along the control shaft which has an axis of rotation and carries a cam unit per switch for activation of said switch, at least one of said cam units having a set of at least two cam discs which are rotatable about said axis and securing means for preventing rotation of the cam discs relative to the control shaft, wherein the improvement comprises said securing means comprising

a support member on each side of the set of cam discs of the cam unit, each of said support members being disposed on the control shaft and secured against rotation relative thereto and at least one of the support members being displaceable axially along the control shaft,

at least one spring that acts in an axial direction with respect to said control shaft to produce a rotational frictional coupling between the cam discs and the support members of the cam unit,

means for axially tightening said spring,

axial stop means for defining an axial end position of said tightening means and therefore the maximum axial tension of the spring, and

a friction disc carried by the control shaft and disposed between the cam discs of said cam unit, said friction disc being displaceable axially along the control shaft and secured against rotation relative thereto,

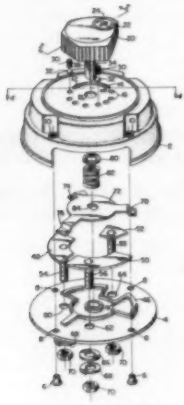
said spring being located between said axial stop means and the cam disc facing said stop means.

4,424,424

BOAT BATTERY SELECTOR SWITCH COMBINED WITH LOCK

Leroy F. Hollenbeck, Jr., Miami, Fla., assignor to Perko, Inc., Miami, Fla.

Division of Ser. No. 120,230, Feb. 11, 1980, Pat. No. 4,280,028. This application Feb. 11, 1981, Ser. No. 233,351
The portion of the term of this patent subsequent to Jul. 21, 1998, has been disclaimed.
Int. Cl.³ H01H *9/28, 19/20*
U.S. Cl. 200—44 **1 Claim**



1. A single pole, triple throw selector switch for boat batteries having:

(a) a housing for said selector switch, said housing having a top surface with indentation means for engaging formed therein;

(b) a selector knob actuating said selector switch and mounted for rotation on said housing; and

(c) means for preventing rotation between said selector knob and said housing located in said selector knob and comprising a locking cylinder mounted for rotation by a key, said locking cylinder having a locking pin projecting vertically from the bottom thereof for engagement with said indentation means.

4,424,425

CIRCUIT BREAKER COMPARTMENT SHIELD ASSEMBLY

Roger N. Castonguay, Terryville, Conn., assignor to General Electric Company, New York, N.Y.

Continuation-in-part of Ser. No. 324,336, Dec. 7, 1981, abandoned. This application Jul. 5, 1983, Ser. No. 511,070
Int. Cl.³ H01H *9/22;* H02B *1/04*
U.S. Cl. 200—50 AA **15 Claims**

10. A shield assembly for use with fused circuit breakers within a circuit breaker compartment comprising:

a side mounting frame;

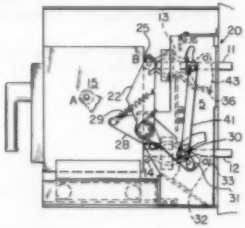
a pair of first and second shields hingeably connected to said mounting frame;

a pair of first and second actuator arms pivotally attached to said mounting frame;

an extension shield on said mounting frame in a plane perpendicular to said first and second moveable shields;

an extension link connecting between said second actuator arm and a connecting link for causing said first and second shields to open and close in unison when said first actuator arm contacts a portion of a fused circuit breaker; and

means defining a guide slot within said second actuator arm for guiding said connecting link in a first direction to open



said pair of shields and in an opposite direction for closing said pair of shields.

4,424,426

BATTERY POWERED DRAWER OPENING DEVICE

Shiro Ishii, Garden Grove, Calif., assignor to M-S Corporation, Stanton, Calif.

Filed Jun. 24, 1982, Ser. No. 391,911
Int. Cl.³ H01H *3/16*
U.S. Cl. 200—61.61 **17 Claims**

1. An electrically opening drawer assembly comprising:

a. a casing;

b. a drawer tray slidable into and out of said casing;

c. a first latch member fixed to said drawer tray;

d. a second latch member pivotally mounted to said casing for rotation about a first mounting axis, having a hook portion engageable with said first latch member when said second latch member is in a first rotational position to hold said drawer tray inside said casing, said first latch member being spaced from said first mounting axis in a first direction radially outwardly extended from said first mounting axis, said second latch member having a first extended portion radially extending from said first mounting axis;

e. a solenoid fixed in said casing, and means, electrically capable of being coupled to said solenoid, for energizing said solenoid in response to an applied DC voltage;

f. switch means for coupling said energizing means to said solenoid to apply said DC voltage to said solenoid;

g. a third latch member pivotally mounted to said casing for rotation about a second mounting axis, having a second extended portion extending generally radially outwardly from said second mounting axis and engageable at an end thereof spaced from said second mounting axis with an end of said first extended portion spaced from said first mounting axis;

h. means, responsive to energization of said solenoid by said DC voltage, for rotating said second extended portion about said second mounting axis so as to disengage said first extended portion from said second extended portion;

i. first spring means, coupling said first and second extended portions, for biasing said first and second extended portions into engagement; and

j. second spring means for rotating said second latch member

to disengage said hook portion from said first latch member and for urging said drawer tray out of said casing when said first latch member is disengaged from said hook portion.

4,424,427

VACUUM SWITCH

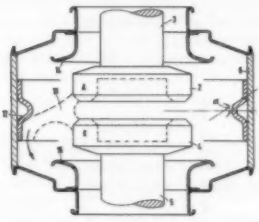
Rudolf Gebel, and Lothar Schmidt, both of Erlangen, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Jul. 8, 1982, Ser. No. 396,384

Claims priority, application Fed. Rep. of Germany, Jul. 22, 1981, 3129020

Int. Cl.³ H01H *33/00*

U.S. Cl. 200—144 B **3 Claims**



1. A vacuum switch of the type having a housing and contacts which are arranged therein to be movable with respect to each other, the vacuum switch further comprising;

vapor shield means having an inwardly directed bulge, said bulge being arranged near a center plane between the contacts and having a predetermined angle of inclination adapted to deflect along a predeterminable path a plasma jet flow resulting from arcing across the contacts; and

baffle collector means attached to the housing and arranged in said predeterminable path for collecting particles removed from said vapor shield means by said plasma jet flow.

4,424,428

PERMANENT MAGNET ROTATING ARC SWITCH

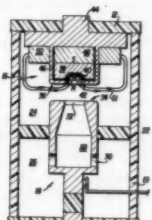
Georges Bernard, Saint-Egreve; Serge Olive, St. Paul de Varces, and Francesco Scarponi, Brignoud, all of France, assignors to Merlin Gerin S.A., Grenoble, France

Filed Apr. 2, 1981, Ser. No. 250,156

Claims priority, application France, Apr. 4, 1980, 80 07904

Int. Cl.³ H01H *33/18*

U.S. Cl. 200—147 A **8 Claims**



1. Rotating arc switch comprising:

a tight enclosure filled with an insulating gas having a high dielectric strength;

first and second contacts housed within said enclosure and having respective annular contact surfaces coming into abutment in a closed position, said contacts being separable in an open position by relative movement extending along a direction perpendicular to said annular contact surfaces;

an annular arc zone arranged between said contact surfaces in the open position;

a cylindrical housing comprising a part of said first contact, including a ring-shaped electrode surrounding a central aperture, and having a front face which constitutes said annular contact surface associated to the first contact, and a rear face;

a permanent magnet lodged within said cylindrical housing so as to develop a magnetic field in said annular arc area, and to compel rotation of the arc drawn upon said annular separated contact surfaces, the permanent magnet being placed up against the rear face of said ring-shaped electrode having a central office;

a central cavity provided in said permanent magnet and located close to the central orifice of said ring-shaped electrode so as to prevent establishment of the arc in said central cavity of the magnet and to constrain the arc within said annular arc area of maximum magnetic blow-out field strength.

4,424,429

CONTACTOR FOR VACUUM TYPE CIRCUIT INTERRUPTER

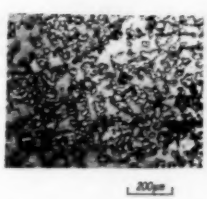
Takashi Yamanaka; Kouichi Inagaki; Eizo Naya; Michinosuke Demizu, and Mitsuhiro Okumura, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 30, 1981, Ser. No. 335,836

Claims priority, application Japan, Sep. 16, 1981, 56-147545

Int. Cl.³ H01H *1/04*

U.S. Cl. 200—264 **7 Claims**



1. A contactor for a vacuum type circuit interrupter having a pair of detachable electrodes in a vacuum chamber which comprises an electrode obtained by sintering a composition comprising an electric conductive metal which is copper or silver as a main component and at least one metal oxide having a melting point lower than that of said conductive metal, said metal oxide being bismuth oxide, thallium oxide, indium oxide, antimony oxide or tellurium oxide, as an additive, in vacuum or a reduced atmosphere or a nonoxidative atmosphere with the resulting formation of a uniformly distributed continuous network of the metal of the metal oxide in the electrode.

4,424,430

ENERGY FEED SYSTEM FOR A MICROWAVE OVEN

Per H. I. Almgren; Ove R. Fredriksson, and Adil M. Nasretdin, all of Norrköping, Sweden, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 7, 1981, Ser. No. 309,335

Claims priority, application Sweden, Oct. 7, 1980, 8006994

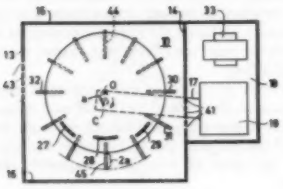
Int. Cl.³ H05B *6/72*

U.S. Cl. 219—10.55 F **15 Claims**

1. A microwave oven comprising an oven cavity bounded by a plurality of conductive walls, a microwave energy source mounted external of said oven cavity, and an energy feed system for coupling energy from the microwave energy source to the interior of the oven cavity comprising, an energy feed-

ing aperture in one cavity wall, a waveguide external to said oven cavity coupling the microwave energy source to said energy feeding aperture, and a rotatable slotted disc arranged within the oven cavity in front of the feeding aperture for producing a relatively uniform energy distribution within the oven cavity, and wherein

the disc is dimensioned so as to cover most of said one cavity wall and is arranged at a small distance from the one cavity wall so that a narrow space is formed between said one cavity wall and the disc, said narrow space serving to



propagate microwave energy radially from the feeding aperture,

the disc comprises a plurality of slots oriented transversally to their respective radial position vectors and dimensioned so as to be excited by microwave energy propagating in said narrow space thereby to radiate energy into the interior of the oven cavity,

the disc is journalled eccentrically so that both the disc and the slots perform simultaneously a rotation and a translation as the disc is rotated; and

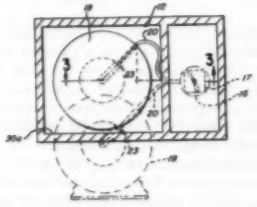
means for rotating the disc in a predetermined direction.

4,424,431

TURNTABLE DRIVE FOR A MICROWAVE OVEN

Vincent P. Gurubatham, St. Joseph Township, Berrien County, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Jan. 4, 1982, Ser. No. 336,769
Int. Cl.³ H05B *6/78*
U.S. Cl. 219—10.55 F **14 Claims**



1. In a microwave oven having wall means defining an oven cavity, microwave generator means for delivering microwave energy to said cavity, a motor, a fan driven by the motor for cooling the generator means during operation thereof, and a food support, the improvement comprising:

a flexible shaft having one end driven by the fan motor, and a distal end;

means for movably mounting the support for (a) movably supporting food in the cavity, and (b) disposing the support in an access position at least partially outwardly of said cavity for placement of food on and removal of food from said support; and

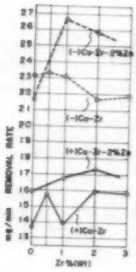
a mechanism connected to said distal end of flexible shaft for driving about a center position thereof said support during operation of the fan motor, said shaft remaining connected to the mechanism when said support is disposed in said access position while permitting selective positioning of the support in said access position.

4,424,432

ELECTRODE MATERIAL FOR TRAVELLING-WIRE TYPE ELECTRICAL DISCHARGE MACHINING

Hideo Kaneko, 2-35-7 Wakabayashi, Setagayaku, Tokyo, Japan, and Makoto Onoue, Kanagawaken, Japan, assignors to Hideo Kaneko, Tokyo and Inoue-Japax Research Incorporated, Yokohama, both of, Japan

Filed Oct. 31, 1978, Ser. No. 956,329
Claims priority, application Japan, Nov. 10, 1977, 52-134064
Int. Cl.³ B23K *9/16*
U.S. Cl. 219—69 E **6 Claims**



1. A method of machining a workpiece which comprises the steps of:

(a) drawing an elongated element having a thickness not greater than 0.5 mm from a cast composition consisting of 0.1 to 3% by weight zirconium, 0.5 to 10% by weight zinc, and the balance copper;

(b) displacing said elongated element along a predetermined path to form a travelling-wire machining electrode therefrom and juxtaposing the travelling-wire machining electrode with a workpiece across a machining gap flooded with a liquid dielectric;

(c) applying time-spaced electrical pulses across said electrode and said workpiece to effect electrical discharges across said gap and machine said workpiece; and

(d) relatively displacing said path of said electrode of said composition and said workpiece to form a machined contour in said workpiece.

4,424,433

METHOD AND APPARATUS FOR ELECTRICALLY MACHINING A CONDUCTIVE WORKPIECE WITH ISOTROPIC ULTRASONIC-WAVES RADIATION

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

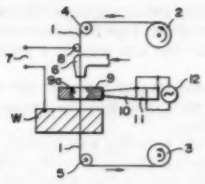
Continuation-in-part of Ser. No. 202,232, Oct. 30, 1980, Pat. No. 4,408,113, which is a continuation-in-part of Ser. No. 222,763, Jan. 6, 1981, Pat. No. 4,386,256, which is a continuation-in-part of Ser. No. 226,417, Jan. 19, 1981, Pat. No. 4,379,960. This application May 12, 1981, Ser. No. 262,932
Claims priority, application Japan, May 15, 1980, 55-64469
Int. Cl.³ B23P *1/12*
U.S. Cl. 219—69 W **6 Claims**

1. In a method of electrically machining a conductive workpiece wherein the machining surface of an electrode is spacedly juxtaposed with the workpiece and supplied with a machining liquid medium to define a liquid filled machining gap therebetween and a machining electric current is passed between the electrode and the workpiece to electrically machine the latter across the gap,

the improvement which comprises the steps of:

positioning a circumferentially continuous annular vibrant

wave-emitting surface of an emitting member independent of said workpiece so as to spacedly surround said electrode and to be spaced from the workpiece; and



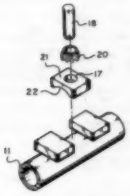
producing ultrasonic waves with said surface by vibrationally activating the same, and propagating said ultrasonic waves onto at least a portion of said machining electrode surface substantially isotropically from said continuous annular waveemitting surface.

4,424,434

BOILER TUBE WEARBAR, STUD AND ARC SHIELD

Charles C. Pease, Vincentown, and Eugene P. Schaeffer, Marlton, both of N.J., assignors to Omark Industries, Inc., Portland, Oreg.

Filed Nov. 17, 1980, Ser. No. 207,665
Int. Cl.³ B23K *9/20*
U.S. Cl. 219—99 **14 Claims**



13. The method of securing wearbars to members such as boiler tubes used in furnaces and the like wherein the wearbars protect the boiler tubes from abrasion by high velocity air and fuel comprising the steps of:

placing a wearbar having an aperture therein in position upon the boiler tube; and

placing an end weldable stud through the aperture of the wearbar in contact with the boiler tube and securing the wearbar in place by stud welding the stud by the stud welding technique utilizing sufficient welding current to, at least, partially fill the aperture of the wearbar with molten metal to fuse together the stud, wearbar and boiler tube.

4,424,435

LOW EXPANSION LASER WELDING ARRANGEMENT

William P. Barnes, Jr., Acton, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Sep. 11, 1981, Ser. No. 301,266
Int. Cl.³ B23K *27/00*
U.S. Cl. 219—121 LD **9 Claims**

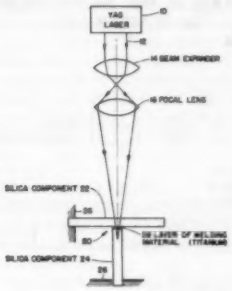
1. A method of laser beam welding of two components, comprising the steps of:

a. selecting the material of at least one of the two components to be welded to be substantially transparent to radiation at the wavelength of the laser welding beam;

b. placing over the surface area of the weld joint a layer of welding material which is substantially absorbent of radiation at the wavelength of the laser welding beam;

c. positioning the two components in the positions at which they are to be welded with the layer of welding material therebetween; and

d. irradiating the welding material with the laser welding



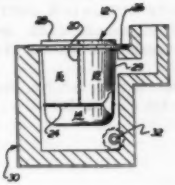
beam, through the component constructed of a material which is substantially transparent thereto, for a sufficient period of time to cause melting of the welding material and fusion thereof to the two components being welded.

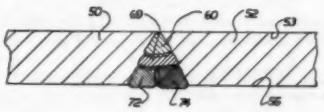
4,424,436

METHOD OF FORMING CRUCIBLES FOR MOLTEN MAGNESIUM

Kenneth J. Humberstone, Pepper Pike, Ohio, assignor to American Tank & Fabricating Company, Cleveland, Ohio

Division of Ser. No. 220,741, Dec. 29, 1980, Pat. No. 4,353,535.
This application Dec. 24, 1981, Ser. No. 334,212
Int. Cl.³ B23K *9/00*
U.S. Cl. 219—137 R **10 Claims**



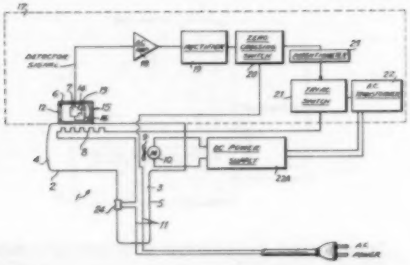


1. A method of fabricating a ferritic stainless steel crucible for containing molten magnesium, including the steps of working ferritic stainless steel plates at temperatures above about 200° F. but below the blue brittle temperature range for the ferritic stainless steel plate to form side wall sections of a crucible, placing opposed portions of the side wall sections in close proximity to each other, heating the opposed portions of the side wall sections to 100°–150° C. and completely welding the opposed portions of the side wall sections to each other before allowing the temperature of the opposed portions of the side wall sections to drop below1 100° C.

4,424,437
HAIR DRYER WITH REMOTE SENSING TEMPERATURE CONTROL

Henry J. Walter, Dunedin, Fla., and Frank Schwarz, Stamford, Conn., assignors to Clairol Incorporated, New York, N.Y.

Filed Feb. 24, 1981, Ser. No. 238,240
Int. Cl.³ H05B 1/02
U.S. Cl. 219—364 **10 Claims**

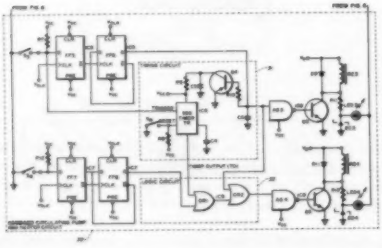


1. An electric hair dryer comprising a housing having therein
an air inlet,
an air outlet,
a heating source comprising a fan and heating means,
at least one infrared radiation detector to sense the infrared radiation emanating from the hair and to convert said infrared radiation to electric signals,
wherein said electric signals are transmitted to control means for controlling the output of the heating means in response to the infrared radiation electric signals to permit rapid drying without the hair exceeding a predetermined temperature level.

4,424,438
REMOTE ACTUATOR SYSTEM

Stanley I. Antelman, Sacramento, Calif., and Charles Ladue, Phoenix, Ariz., assignors to Stanmar Technology, Sacramento, Calif.

Filed Nov. 5, 1981, Ser. No. 318,400
Int. Cl.³ H05B 1/02
U.S. Cl. 219—491 **10 Claims**

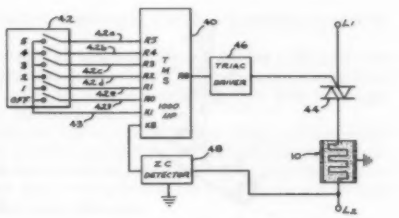


1. A low voltage control system for selectively turning on and off one or more of a plurality of electrical devices used in the operation of a spa, and which devices operate at around 120/230 VAC, comprising a plurality of low voltage activated electrical circuits, each electrical circuit operating one of said electrical devices, each electrical circuit including:
(a) a relay coupling said electrical device to a power source of 120/230 volts AC,
(b) a low voltage momentary contact switch having a low voltage lamp electrically connected thereto to indicate when said switch is energized,
(c) dual flip-flop means coupled to said switch to act as a flip-flop, said dual flip flop means further constituting a
(d) debounce means connected to said switch;
(e) a high frequency decoupling capacitor connected to said switch to filter out any high frequency components of the electrical signal that can arise as a result of the relay switching,
(f) transistor means coupled between said flip-flop means, said relay for energizing said flip-flop means when said switch is actuated,
(g) a power supply including transforming, rectifying and voltage regulation means for providing low voltage operating power for said flip-flop means and said transistor means, and
(h) a zener diode voltage overload means electrically connected to said relay and to said lamp.

4,424,439
PROTECTIVE METHOD AND CIRCUIT ARRANGEMENT FOR APPLIANCE INCORPORATING SHEATHED HEATING ELEMENT

Thomas R. Payne, Louisville, and Robert V. Chou, Prospect, both of Ky., assignors to General Electric Company, Louisville, Ky.

Filed Jan. 7, 1982, Ser. No. 337,877
Int. Cl.³ H05B 1/02
U.S. Cl. 219—501 **16 Claims**



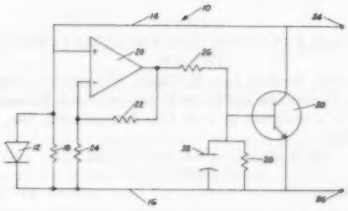
1. A protective control arrangement comprising: a heating unit comprising a concentric assembly of a resistive heating element embedded in an insulating material and enclosed within a metallic sheath, said insulating material in its normal state being characterized by a very high resistance, said resistive element being adapted for energization by an external power supply, said heating unit being susceptible to a discontinuity developing in said resistive element when energized which can result in an electrical arc at the discontinuity, the arc being effective to reduce said insulating material proximate to the arc to a relatively low resistance state to create a relatively low resistance current path from the discontinuity to said sheath and ultimately rupture said sheath, the arc and rupture then if unchecked propagating along the length of said sheath, the period of propagation being the time between initiation and termination of such propagation, said insulating material having associated therewith a nominal recovery time required to allow the resultant relatively low resistance insulating material to return to a relatively high resistance state upon extinguishing the arc by interruption of power to said heating element;
switch means operatively connected to said heating element for selectively coupling said heating element to the external power supply; and
control means operatively connected to said switch means and effective to periodically interrupt power to said heating element by opening said switch means for interrupt periods of predetermined duration; the time between successive ones of said interrupt periods being selected to confine the duration of the period of propagation within

predetermined limits and the duration of each of said interrupt periods being at least approximately equal to the nominal recovery time thereby preventing the propagation of a relatively low resistance current path from said heating element to said metallic sheath through said insulating material along the length of said heating unit resulting from the occurrence of a discontinuity in said heating element.

4,424,440
AUTOMATIC PHOTOCELL LOADING

Barry J. Youmans, Rittman, Ohio, assignor to The Babcock & Wilcox Company, New Orleans, La.

Filed Oct. 16, 1981, Ser. No. 311,845
Int. Cl.³ G02B *27/00*
U.S. Cl. 250—206 **9 Claims**

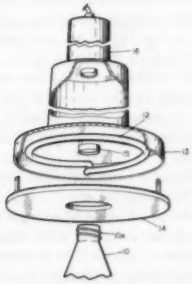


1. A circuit for regulating the output voltage of a device having a logarithmic output signal comprising loading means connected across the output of the device, amplifying means connected across said loading means to amplify the output voltage produced by the device, and switching means connected to the output of said amplifying means, said switching means being actuated at a predetermined voltage applied thereto by said amplifying means resulting in the shunt loading of the device preventing the output voltage of the device from approaching a flat portion of the logarithmic output signal.

4,424,441
METHOD AND APPARATUS FOR INSPECTING GLASS CONTAINERS

Robert J. Bieringer, and Sam Lovalenti, both of Toledo, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Jun. 12, 1981, Ser. No. 273,164
Int. Cl.³ G01V *9/04*
U.S. Cl. 250—223 B **7 Claims**

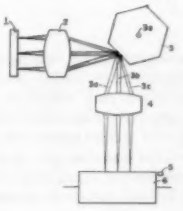


4. An apparatus for inspecting glass containers for horizontal checks in the finish portion thereof, wherein the containers are successively moved upright through an inspection station, with means at said inspection station for interrupting lateral movement of said container, the improvement comprising an annular diffused source of radiant energy at said inspection station, said source of radiant energy being positioned above the container finish and coaxial therewith, the spacing therebetween being such as to illuminate the entire external annular surface of the container finish with a downwardly directed, convergent pattern of illumination, a light-sensitive device mounted at said inspection station in axial alignment with the open center of said annular diffused source of radiant energy and above said container to view the interior of the upper area of said finish portion such that a reflected detectable portion of said radiant energy will energize said light-sensitive device, and means for creating a signal in response to the energization of said light-sensitive device by a horizontal check.

4,424,442
SCANNING METHOD USING A PLURALITY OF BEAMS AND APPARATUS THEREFOR

Takashi Kitamura, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 4, 1981, Ser. No. 327,447
Claims priority, application Japan, Dec. 18, 1980, 55-180194
Int. Cl.³ H01J *3/14*
U.S. Cl. 250—236 **7 Claims**



1. A scanning method using a pluraltiy of beams, comprising the steps of:

generating a plurality of light beams simultaneously;

deflecting said plurality of light beams in a primary scanning direction;

causing said light beams to lie at substantially the same coordinate position relative to a coordinate axis defined by a direction orthogonal to the primary scanning direction and causing each of the beams having such positional relation to pass over light beam detecting means; and

scanning a plurality of different positions relative to a coordinate axis defined by the primary scanning direction on a scanned surface with said plurality of light beams.

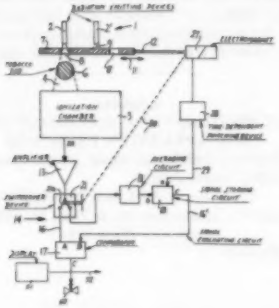
4,424,443
APPARATUS FOR MEASURING THE DENSITY OF CIGARETTE RODS OR THE LIKE

Joachim Reuland, Neu Börnsen, Fed. Rep. of Germany, assignor to Hauni-Werke Körber & Co. KG., Hamburg, Fed. Rep. of Germany

Filed Oct. 1, 1980, Ser. No. 192,905
Claims priority, application Fed. Rep. of Germany, Oct. 13, 1979, 2941580
Int. Cl.³ G01D *18/00*; G01N *23/00*
U.S. Cl. 250—252.1 **13 Claims**

1. Apparatus for measuring the density of a moving rod which contains tobacco or other fibrous material and is transported along a predetermined path, comprising a source of penetrative nuclear radiation, said source including a first component which emits radiation in a direction toward transducer means by way of the rod in said path and a second component which emits radiation toward said transducer means while bypassing the rod in said path; selector means operative to alternately cause the radiation issuing from said source to propagate itself (a) across said path whereby the

intensity of radiation decreases during penetration through the rod in said path proportionally with the density of the corresponding portion of the rod, and (b) past said path so that the intensity of radiation which bypasses the rod in said path remains substantially unchanged; common transducer means for converting the radiation which has penetrated through the rod in said path into first electric signals and for converting the radiation which has bypassed said path into a series of successive second electric signals; and signal evaluating means con-



nected with said transducer means and including means for storing successive second signals during penetration of radiation through the rod in said path within the interval of time that follows the generation of the stored second signal and ends on generation of the next second signal which forms part of said series and replaces the stored second signal, and means for comparing each stored second signal with those first signals which are generated by said transducer means during storage of a second signal.

4,424,444

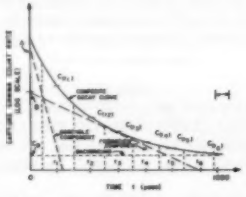
METHOD FOR SIMULTANEOUS MEASUREMENT OF BOREHOLE AND FORMATION NEUTRON LIFETIMES

Harry D. Smith, Jr., and Dan M. Arnold, both of Houston, Tex., assignors to Halliburton Company, Duncan, Okla.

Continuation of Ser. No. 182,171, Aug. 28, 1980, abandoned. This application Jul. 1, 1982, Ser. No. 394,219

Int. Cl.³ G01V *5/00*

U.S. Cl. 250—270 **21 Claims**



1. A method for simultaneously measuring the thermal neutron decay time of materials in and about a well borehole, comprising the steps of:

generating, in a well borehole, a relatively short duration discrete burst of fast neutrons which are rapidly moderated by interaction with nuclei of materials in the borehole and surrounding earth formations and slowed down to thermal energy, creating a thermal neutron population in the borehole and surrounding earth formations;

detecting, in the borehole, radiations representative of the thermal neutron population in the borehole and surrounding earth formations, in at least four time intervals subsequent to said burst of fast neutrons and generating, at least four count signals representative of said thermal neutron population during said at least four time intervals; and

combining said at least four count signals according to a predetermined relationship to simultaneously separate the borehole and formation decay components and to derive at least two measurement signals representative of the thermal neutron decay time of the borehole medium and the earth formation medium in the vicinity of the borehole.

4,424,445

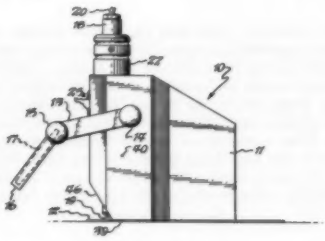
PORTABLE COATING THICKNESS MEASURING DEVICE

Boris B. Joffe, Buffalo; John E. Tiebor, Williamsville; Jerry J. Spongr, Tonawanda, and Byron E. Sawyer, North Tonawanda, all of N.Y., assignors to Twin City International, Inc., Amherst, N.Y.

Filed Mar. 23, 1981, Ser. No. 246,723

Int. Cl.³ G01N *23/00*

U.S. Cl. 250—308 **15 Claims**



1. A portable coating thickness measuring device utilizing radiation, said device comprising:

a housing having a base, a first bore perpendicular to the plane of said base, and a second bore, the axis of which intersects the axis of the first bore at a point in the plane defined by the base of said housing;

a probe assembly slidably positioned in said first bore for vertical movement therein between a raised position and a lowered position wherein the lower end of the probe is in contact with the coating to be measured in order to provide radiation backscatter therefrom;

a radiation source housed in said probe assembly;

a radiation detection system housed in said probe assembly and capable of sensing said radiation backscatter and providing a suitable signal indicative of the thickness of the coating; and

means for projecting a predetermined image directly onto the surface to be measured and at a point aligned with the lower end of the probe, whereby to permit accurate positioning of the probe assembly with respect to the coated area the thickness of which is to be measured, said image projecting means being positioned in said second bore;

said probe assembly further comprising an inner cylindrical member housing said radiation source and said detection system, said inner cylindrical member being slidably disposed within a substantially annular, outer positioning sleeve, which, in turn, is slidably disposed within said first bore of said housing.

4,424,446
GAMMA CAMERA CORRECTION SYSTEM AND METHOD FOR USING THE SAME

Dan Inbar; Giora Gafni, both of Haifa; Ernest Grimberg, Kiryat Bialick, and Jacob Koren, Haifa, all of Israel, assignors to Elscint, Ltd., Haifa, Israel

Filed Jun. 19, 1980, Ser. No. 161,050
Int. Cl.³ G01T *1/20*; G01D *18/00*
U.S. Cl. 250—363 S **19 Claims**

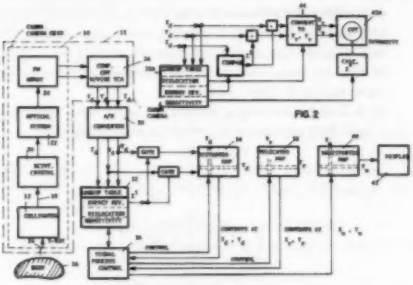


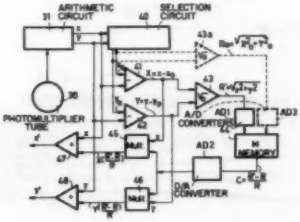
FIG. 2

1. In a nuclear imaging device having a head that includes a plurality of photodetectors for producing output signals in response to radiation stimuli which are emitted by a radiation field and interact with the device; coordinate computation circuitry responsive to said signals for producing a pair of calculated coordinate signals for each interaction; and a storage means responsive to events, each of whose total energy lies within an energy window functionally related to the coordinates of the event, for storing a distorted representation of the image of the radiation field, the improvement comprising: sequentially applying to the distorted representation of the image two sets of independent, spatially dependent, correction factors whereby the sequence of application independently corrects different types of distortions in the distorted image.

4,424,447
GAMMA CAMERA COMPRISING AN ELECTRONIC DEVICE FOR THE CORRECTION OF LINEARITY ERRORS

Pierre H. Lelong, Gentilly, and Jean H. Ott, Ste Genevieve, both of France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 30, 1981, Ser. No. 248,914
Claims priority, application France, Apr. 4, 1980, 80 07762
Int. Cl.³ G01T *1/20*
U.S. Cl. 250—363 S **23 Claims**

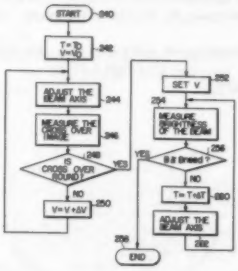


1. A gamma camera for forming an image of a radiation distribution in the body, comprising a scintillation crystal for generating local scintillations by gamma radiation intercepted by the crystal, several photomultiplier tubes which are arranged in a regular array so that their photosensitive surface is opposite the surface of the scintillation crystal in order to produce output signals in response to the local scintillations, an arithmetic circuit for determining, on the basis of the output signals to be applied thereto, the coordinates of the local scintillations, and a correction device for correcting the coordinates determined, characterized in that, the correction device comprises means for determining the center of a photomultiplier tube which is situated nearest to the local scintillation, means for determining a distance signal which is a measure of the distance between the local scintillation and said center, and means for determining corrected coordinates of the local scintillation on the basis of the distance signal determined.

4,424,448
ELECTRON BEAM APPARATUS

Tadahiro Takigawa, Inagi, and Isao Sasaki, Sodegaura, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Dec. 16, 1980, Ser. No. 216,948
Claims priority, application Japan, Dec. 26, 1979, 54/168169; Mar. 21, 1980, 55/35833
Int. Cl.³ H01J *3/08, 3/12*
U.S. Cl. 250—397 **14 Claims**

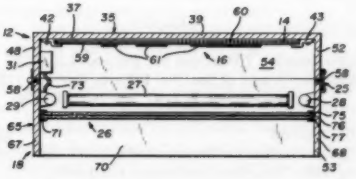


1. An electron beam apparatus comprising:
an electron gun having a Wehnelt electrode and an cathode;
heater means for heating the cathode;
optical means for projecting a cross-over image of an electron beam emitted from said electron gun onto a sample;
means for sensing a figure of the cross-over image on the sample to produce an output signal denoting the circularity of the cross-over image; and
bias means for applying a bias voltage to said Wehnelt electrode according to the output of said sensing means.

4,424,449
SHIELDED FLUORESCENT SIGNS

Robert A. O'Brill, 8116 Lorel, Skokie, Ill. 60076

Filed Jul. 29, 1981, Ser. No. 287,949
Int. Cl.³ G01N *21/64*; G09F *13/20*
U.S. Cl. 250—461.1 **10 Claims**



1. A sign, comprising:
indicia means containing a fluorescent pigment for rendering said indicia highly visible in daylight ambient conditions;

means at least partially translucent to visible radiation and at least partially opaque to ultraviolet radiation, spaced apart in front of said indicia means for shielding thereof from solar ultraviolet radiation impinging on said indicia means to prevent or at least to retard greatly the fading of said fluorescent pigment in said indicia means during daylight ambient conditions and for permitting the observation thereof by visible radiation in daylight ambient conditions; and

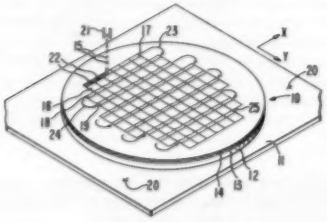
radiation means disposed in front of said indicia means and interposed between said shielding means and said indicia means for producing rearwardly directed ultraviolet radiation and for causing said radiation to impinge directly on said indicia means without passing through said shielding means to cause said fluorescent pigment to fluoresce in low light ambient conditions to produce forwardly directed visible radiation passing through said shielding means toward an observer.

4,424,450

HYBRID MOVING STAGE AND RASTERED ELECTRON BEAM LITHOGRAPHY SYSTEM EMPLOYING APPROXIMATE CORRECTION CIRCUIT

Billy W. Ward, Rockport, and William D. Wells, Beverly, both of Mass., assignors to Varian Associates, Inc., Palo Alto, Calif.

Filed Sep. 8, 1981, Ser. No. 299,681
Int. Cl.³ H01J 77/00
U.S. Cl. 250—492.2 6 Claims



1. A hybrid moving stage and scanning electron beam lithography system, including within a vacuum chamber a source of electrons, an electron optical column for directing an electron beam towards a mask or wafer, a moving stage for mounting said mask or wafer to be exposed and means for generating uncorrected x and y analog voltages V_{xo}, V_{yo} adapted for deflecting said electron beam over the surface of said mask or wafer, the improvement comprising:

a circuit for generating corrected x and y analog deflection voltages V_x, V_y approximately corrected for raster scan errors, such as field curvature and trapezoidal errors by adding to incorrected voltage V_{xo}, V_{yo} predetermined correction voltages which are derived from said uncorrected analog values of V_{xo}, V_{yo}.

4,424,451

WATER TURBINE

Friedrich Schmidt, 7 Harrigan St., Edison, N.J. 08817

Continuation-in-part of Ser. No. 103,888, Dec. 17, 1979. This application Jan. 8, 1982, Ser. No. 337,926
Int. Cl.³ F03B 13/10
U.S. Cl. 290—54 12 Claims

1. A water turbine for the conversion of the kinetic energy of moving water into electrical energy comprising:

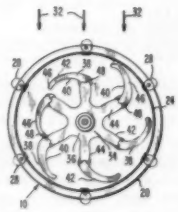
(a) a housing means defining a generally cylindrical chamber means therein, said housing means further defining a laterally extending opening therearound to allow fluid flow communication with moving water;

(b) a rotor means being rotatably mounted within said chamber means of said housing means, said rotor means comprising:

1. a hub means rotatably secured to said housing means; and

2. a plurality of vane means extending radially outwardly from said hub means and fixedly secured with respect thereto, each of said vane means defining a propulsion side adapted to concentrate the force of moving water against said vane and to rotate said rotor means in a first propelling direction and a non-propulsion side adapted to dissipate the force of moving water against the other side of said vane to prevent rotation of said rotor means in the opposite second non-propelling direction, said vane means further comprising:

(i) a first blade means fixedly secured with respect to said hub means to be rotatable therewith;



(ii) a second blade means being pivotally secured with respect to said first blade means and extending radially outward therefrom to be engageable with respect to an adjacent vane means responsive to a predetermined force being exerted on said vane means in the second non-propelling direction;

(iii) a stop means positioned adjacent said first blade means and said second blade means to limit the distance of rotational movement therebetween toward said non-propulsion side thereof; and

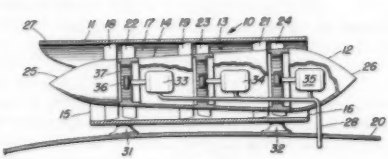
(iv) a resilient biasing means attached to said first blade means and said second blade means and adapted to apply a force to urge the second blade means to rotate away from said propulsion side thereof toward the position of engagement of said stop means to facilitate rotation of said rotor means in the first direction.

4,424,452

FLUID-DRIVEN POWER GENERATOR

Paul T. Francis, P. O. Box 66, Wareham, Mass. 02538

Filed Jan. 19, 1982, Ser. No. 340,760
Int. Cl.³ F03D 1/02
U.S. Cl. 290—55 9 Claims



1. Fluid-driven power generator, comprising:

(a) a tubular shroud,

(b) a spool mounted concentrically in the shroud, the inner surface of the shroud and the outer surface of the spool approaching one another from an entrance end to an exit end to form a venturi,

(c) a series of stator blade rings joining the spool to the shroud,

(d) a rotor blade ring rotatably mounted on the spool adjacent each stator blade ring, and

(e) a separate generator mounted in the spool adjacent each rotor blade ring and joined to it by a separate drive mechanism, said drive mechanisms having different gear ratios and the gear ratios of the drive mechanisms being such that it takes less energy to turn each succeeding rotor blade from the entrance end to the exit end.

4,424,453
KEY-OPERATED DEVICE FOR SAVING ELECTRICAL ENERGY

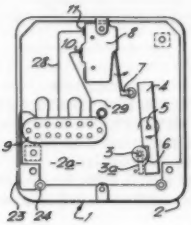
Nigel P. Balis, 30 Commonfields, West End, Woking, Surrey, and Raymond B. Brill, 29 Ham St., Ham, Richmond, Surrey, both of England

Filed Apr. 3, 1981, Ser. No. 250,871

Claims priority, application United Kingdom, Apr. 8, 1980, 8011618; Sep. 2, 1980, 8028247

Int. Cl.³ H01H *19/04, 27/06*

U.S. Cl. 307—112 **7 Claims**



1. A system for saving electrical energy in accommodation to which access is by a lockable door, said system comprising a key-operated device including switch means for controlling the supply of electrical power to at least one electrical outlet associated with the accommodation; and a single key insertable in said device and movable to an actuating position for both unlocking the door and operating said device, said switch means being arranged to connect said supply to said outlet only when the key is present in the device and in an actuating position and to disconnect said supply from said outlet when the key is removed from the device.

4,424,454
ELECTRICAL TIME SWITCH

Malcolm W. T. Palmer, Holt, and Grahame A. Pickford, Chilcompton, both of England, assignors to Horstman Gear Group Ltd., Bath, England

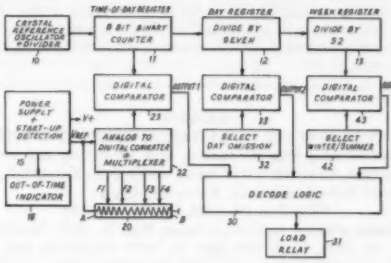
Filed Dec. 2, 1981, Ser. No. 326,932

Claims priority, application United Kingdom, Aug. 21, 1981, 8125604

Int. Cl.³ H01H *3/26*

U.S. Cl. 307—140 **15 Claims**

1. An electrical timer device comprising switching means for switching the supply of electricity to an electrical load, first setting means determining the times of day at which electricity is to be supplied to the load in accordance with a first timing schedule, second setting means determining the times of day at which electricity is to be supplied to the load in accordance with a second timing schedule and third setting means selecting the output of said first setting means during the winter



months and the output of said second setting means during the summer months.

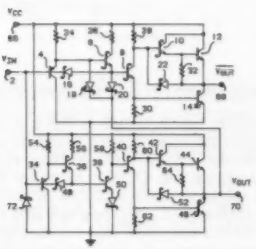
4,424,455
GLITCH ELIMINATING DATA SELECTOR

Eric D. Neely, Phoenix, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 22, 1982, Ser. No. 370,711

Int. Cl.³ H03K *19/007, 19/01*

U.S. Cl. 307—243 **5 Claims**



1. A data selection circuit for selectively generating first and second complementary signals at first and second outputs thereof in response to an input signal which is capable of assuming first and second states, comprising:

inverting circuit means adapted to be coupled to said input signal for generating said first signal at said first output, said inverting circuit means comprising,

a first transistor having a base adapted to be coupled to said input signal, an emitter adapted to be coupled to a first source of supply voltage, and a collector adapted to be coupled to a second source of supply voltage,

a second transistor having a base coupled to the emitter of said first transistor,

a collector adapted to be coupled to said first source of supply voltage and having an emitter,

a first inverting stage having an input coupled to the emitter of said second transistor, and

a first push-pull output stage coupled between said first output and an output of said first inverting stage;

non-inverting circuit means adapted to be coupled to said input signal for generating said second signal at said second output, said noninverting circuit means comprising,

a second input stage for receiving said input signal,

a second inverting stage having an input coupled to an output of said second input stage,

a third inverting stage having an input coupled to an output of said second inverting stage, and

a second push-pull output stage coupled between said

second output and an output of said third inverting stage; and

diode means coupled between said second output and the junction of the emitter of said first transistor and the base of said second transistor, so as to conduct current from said junction to said second output for preventing said first and second outputs from simultaneously being in said first state.

4,424,456

DRIVER CIRCUIT FOR CHARGE COUPLED DEVICE

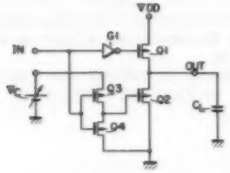
Ryuzo Shiraki; Seizi Watanabe, both of Tokyo, and Toshio Yuyama, Kawasaki, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Dec. 23, 1980, Ser. No. 219,239

Claims priority, application Japan, Dec. 26, 1979, 54-169731; Dec. 26, 1979, 54-169732; Dec. 26, 1979, 54-169733; Dec. 26, 1979, 54-169734; Dec. 26, 1979, 54-169735; Dec. 26, 1979, 54-169737

Int. Cl.³ H03K *5/01, 17/687*

U.S. Cl. 307—268 **14 Claims**



1. A control circuit for a charge coupled device (CCD) comprising:

CMOS inverter means including first and second complementary MOS transistor means connected so as to respond complementarily to an input switching signal;

means connecting said CCD to be driven by said CMOS inverter means such that said CMOS inverter provides a charge control path, including said first MOS transistor means, for the equivalent load capacitance of said CCD, said charge control path being switchable under control of said input switching signal; and

control means including variable voltage supply means for controlling the mutual conductance of said first MOS transistor means to adjust the time constant of said charge control path.

4,424,457

VOLTAGE LEVEL DETECTING CIRCUIT

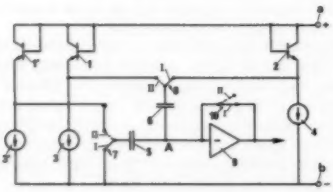
Oskar Leuthold, Marin, Switzerland, assignor to Ebauches Electroniques, Switzerland

Filed May 20, 1981, Ser. No. 265,594

Claims priority, application Switzerland, May 28, 1980, 4128/80

Int. Cl.³ H03K *5/24, 5/153*

U.S. Cl. 307—350 **17 Claims**



1. A voltage detecting circuit for comparing an input voltage with a reference level which is associated with the bandgap value of a diode voltage for being substantially independent of temperature, the reference level is defined on the basis of the sum of a first diode voltage and of the product of the difference between a second and a third diode voltage by a predetermined coefficient, comprising:

a first and a second input terminal between which said input voltage is applied;

voltage generating means for providing a first, a second and a third voltage the values of which are respectively representative of a first, second and third diode voltage;

a first capacitive substractive circuit being connected to at least one of said input terminals and to which said first voltage is applied, for producing a first signal representative of the difference between the represented first diode voltage and said input voltage;

a second capacitive substractive circuit to which said second and said third voltages are applied for producing, in association with the production of the first signal, a second signal representative of the product of the difference between the represented second and third diode voltages by a predetermined coefficient, said first and second signals being applied to a node of the detecting circuit for producing at said node a difference signal representative of the algebraic value of the difference between said input voltage and a reference level; and

an amplifying circuit having an input connected to said node for bringing said difference signal to a logic level.

4,424,458

CONTACTLESS PROXIMITY SENSOR WITH MULTILEVEL RESPONSE

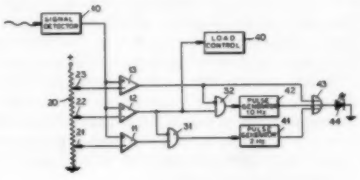
Robert Buck, Neukirch, and Gerd Marhofer, Essen-Bredeney, both of Fed. Rep. of Germany

Filed Oct. 7, 1981, Ser. No. 309,480

Claims priority, application Fed. Rep. of Germany, Oct. 9, 1980, 3038102

Int. Cl.³ A03K *3/26;* **G08B** *3/00;* **H03K** *5/153*

U.S. Cl. 307—361 **5 Claims**



1. A contactless proximity sensor comprising:

a detector of incoming signals indicative of the presence of an object in a predetermined area;

a threshold circuit connected to said detector and provided with a first, a second and a third output respectively energized in the presence of an incoming signal surpassing a low, an intermediate and a high level;

a visual indicator;

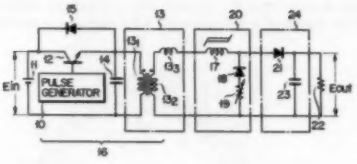
load-control means connected to said second output for performing a switching operation in response to an incoming signal exceeding at least said intermediate level; and

pulse-generating means connected independently of said indicator to said first, second and third outputs for flashing said indicator at a relatively low rate in response to incoming signals lying in a lower range between said low and intermediate levels and flashing said indicator at a relatively high rate in response to incoming signals lying in an upper range between said intermediate and high levels, said rates lying within the range of visual perception.

4,424,459
HIGH FREQUENCY SWITCHING CIRCUIT

Koichiro Inomata, Yokohama; Michio Hasegawa, Machida, and Toshihiro Onodera, Kunitachi, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jun. 22, 1982, Ser. No. 390,888
Claims priority, application Japan, Jun. 25, 1981, 56-97527
Int. Cl.³ G11C *13/02*
U.S. Cl. 307—415 **9 Claims**



1. A high frequency switching circuit which comprises:
- a single-ended switching circuit including a transformer having a primary winding and a secondary side circuit and a switching element connected between the primary winding of said transformer and DC source;
- means for effecting switching with a predetermined cycle and for a predetermined conductive period;
- means for rectifying and smoothing a supplied voltage, which includes a filtering capacitor connected in parallel with a rectifying element and load; and
- a magnetic amplifier which is connected between said secondary side circuit of said transformer and said rectifying-smoothing means and includes a saturable reactor, said saturable reactor having a coercive force Hc of 0.6 Oe or below and a rectangular ratio Br/Bs of 80% or above at an operating frequency of 20 kHz or above and being prepared from an amorphous alloy having a composition of $(Co_u Fe_v Ni_w)_{100-z} X_z$ or

$$(Co_u Fe_{1-u})_{100-x-y} T_x B_y$$

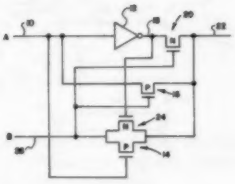
where:
- x=at least one selected from a group consisting of the elements of P, B, C, Si and Ge
- $0 \leqq u \leqq 1.0$
- $0 \leqq v \leqq 1.0$
- $0 \leqq w \leqq 0.7$
- $15 \leqq z \leqq 30$
- $u+v+w=1.0$
- T=at least one selected from a group consisting of Ti, Zr, Hf, V, Nb, Ta, Cr, Mo and W
- $6 \leqq x \leqq 15$
- $0 \leqq y \leqq 10$.

4,424,460
APPARATUS AND METHOD FOR PROVIDING A LOGICAL EXCLUSIVE OR/EXCLUSIVE NOR FUNCTION

David W. Best, Marion, Iowa, assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Jul. 14, 1981, Ser. No. 283,268
Int. Cl.³ H03K *19/21*
U.S. Cl. 307—471 **4 Claims**

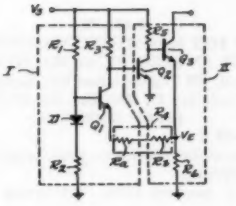
1. Apparatus for providing a logical exclusive OR function comprising, in combination:
- first means for providing a first logical input signal to be exclusively OR'd;
- second input means for supplying a second signal to be exclusively OR'd;
- output means for providing a output signal indicative in logic value of the exclusive OR combination of said first and second signals;
- first transmission gate means, including control means connected between said second logic value input signal and said outut means and further connected to said first logic value signal means for passing said second logic value signal to said output means in response to a logic zero control signal from said first input means;
- second transmission gate means connected between said first logic value input signal and said output means, said second transmission gates means including control means connected to said second logic value signal whereby said first logic value signals are passed to said output means when said second logic value signals are in a logic zero condition; and
- third transmission gate means including logic value inversion means and control input means, connected for passing said first logic value signals to said output means in an inverted condition whenever said second logic value signal is in a logic one condition.



4,424,461
SEMICONDUCTOR INTEGRATED CIRCUIT PROVIDING TEMPERATURE COMPENSATION

Yasuo Taguchi, Yokohama, and Satoshi Nakao, Tokyo, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Feb. 23, 1981, Ser. No. 237,110
Claims priority, application Japan, Feb. 22, 1980, 55-021202
Int. Cl.³ H03K *3/01, 3/26;* **H01L** *31/00;* **H03F** *3/45*
U.S. Cl. 307—491 **8 Claims**

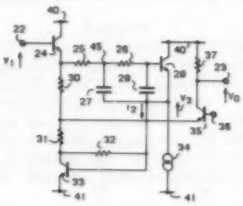


1. A temperature compensated semiconductor integrated circuit comprising:
- a first resistance having a first predetermined temperature coefficient;
- a second resistance having a second predetermined temperature coefficient different from said first temperature coefficient; and
- a semiconductor element having a temperature dependent characteristic and being connected to said first and second resistances, said first and second resistances having values which cause a collective temperature coefficient of said first and second resistances to offset said temperature dependent semiconductor element characteristic so that said integrated circuit operates independent of temperature.

4,424,462
SWITCHED DELAY CIRCUIT

Michael J. Gay, Vaud, Switzerland, assignor to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 29, 1982, Ser. No. 372,876
Int. Cl.³ H03K 5/159, 6/00, 17/16
U.S. Cl. 307—603 4 Claims



1. A switched delay circuit comprising: an input node; an output node; a first voltage bus; a second voltage bus; a first transistor having a base coupled to the input node, an emitter, and a collector coupled to the first voltage bus; a first resistor having a second end and a first end with the first end coupled to the emitter of the first transistor; a second transistor having a base, an emitter, and a collector coupled to the first voltage bus; a second resistor coupled between the second end of the first resistor and the base of the second transistor; a first capacitor coupled between the second end of the first resistor and the emitter of the second transistor; a first current source coupled between the emitter of the second transistor and the second voltage bus; a third transistor having a base, a collector, and an emitter coupled to the second voltage bus; a second capacitor coupled between the base of the second transistor and the base of the third transistor; a fourth transistor having a base, an emitter and a collector coupled to the output node; a third resistor coupled between the emitter of the first transistor and the emitter of the fourth transistor; a fourth resistor coupled between the collector of the third transistor and the emitter of the fourth transistor; a fifth resistor coupled between the base and collector of the third transistor; a sixth resistor coupled between the collector of the fourth transistor and the first voltage bus; and a bias voltage node coupled to the base of the fourth transistor.

4,424,463
APPARATUS FOR MINIMIZING MAGNETIC COGGING IN AN ELECTRICAL MACHINE

J. Donald Musil, 905 Top-O-Hollow Rd., Ames, Iowa 50010

Filed May 27, 1981, Ser. No. 267,526
Int. Cl.³ H02K 3/16
U.S. Cl. 310—49 R 38 Claims

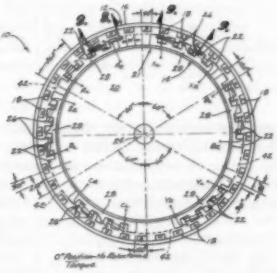
1. An apparatus for reducing magnetic cogging in an electrical motor comprising:

a plurality of magnetic poles, each having a defined pole pitch;

means to support said poles in at least two annular configurations wherein said poles are arranged with substantially alternate polarity within each annular configuration and the configurations overlie one another so that they have a common central axis, said annular configurations are identical rotatable rotors of even number with poles of the same polarity registered;

a magnetic flux carrier including a magnetic material disposed in spaced concentric relation within each of said annular configurations, and being supported by axial bearings to allow relative rotation between each carrier and respective annular configuration about said axis;

the angular position of the magnetic material and at least one flux carrier being displaced angularly relative to the magnetic material and at least one other flux carrier so that the magnetic cogging between the annular configurations surrounding the displaced flux carrier and the magnetic material of the displaced flux carrier, is opposed by the magnetic cogging between the annular configuration surrounding the non-displaced flux carrier and the magnetic material of the non-displaced flux carrier, said flux carriers are cylindrical, each flux carrier having an equal number of teeth each having a defined tooth pitch and being shaped from the magnetic material and regularly spaced around the external circumference of the cylinder and wherein the flux carriers are paired, with the first member of each pair being angularly displaced relative to the second member of each pair so that the teeth of each first member are registered with the space between the



teeth of the second member of the same pair, with the angular distance between the centers of adjacent poles being one pole pitch, and wherein there are three pairs of flux carriers and the first member of each pair is angularly displaced through a distance equal to one-third of two pole pitches with respect to the first member of all other pairs, and the second member of each pair is displaced through a distance equal to one-half of one pole pitch with respect to the first member of the same pair;

the magnetic material of the flux carriers is shaped to receive coils so that if a variable current signal is established in the coils said relative rotation will occur;

the ratio of the span of each of said tooth pitch and to said pole pitch being about 1:1.

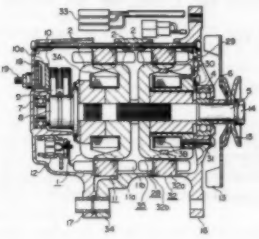
4,424,464
COMBINATION DC/AC GENERATOR FOR AUTOMOTIVE VEHICLES

Takashi Ikegami, Himeji, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Himeji, Japan

PCT No. PCT/JP81/00180, § 371 Date Apr. 14, 1982, § 102(e) Date Apr. 14, 1982, PCT Pub. No. WO82/00737, PCT Pub. Date Mar. 4, 1982
PCT Filed Aug. 19, 1981, Ser. No. 375,127
Claims priority, application Japan, Aug. 19, 1980, 55-117973
Int. Cl.³ H02K 23/50
U.S. Cl. 310—68 D 1 Claim

1. A generator comprising: a cylindrically shaped frame; a rotary shaft adapted to be rotated by a vehicular motor; a first rotor fixedly mounted on said rotary shaft, said first rotor comprising a plurality of circumferentially arranged pole members of alternating magnetic polarity; a first field winding wound on said first rotor; a pair of slip rings and a pair of brushes for making connection to said first field winding; a second rotor fixedly mounted on said rotor forwardly of said first rotor, said second rotor being an induction-type rotor comprising a cylindrically shaped field core fitted flush against said rotary shaft, a cup-shaped magnetic pole member with said field core being positioned within said magnetic pole member, at least one magnetic pole ring, and a magnetic insulating ring coupling said at least one magnetic pole ring to said magnetic insulating ring; a field winding frame fixedly

mounted on said frame and extending into a gap between said field core and said magnetic pole member; a second field winding wound on said field winding frame; a first stator core fixedly mounted on an inside wall of said frame and surrounding said first rotor with a small gap therebetween; a first stator winding wound on said first stator; rectifying means for rectifying an output voltage produced across said first stator winding; a second stator core fixedly mounted on said inside wall of said frame and surrounding said second rotor with a small gap therebetween; a second stator winding wound on said second stator core; and AC output terminals coupled to corresponding ends of said second stator winding, a number of turns of said second stator winding being substantially greater than a number of turns of said first stator winding.



4,424,465

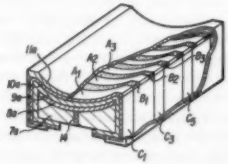
PIEZOELECTRIC VIBRATION TRANSDUCER

Hiroji Ohigashi, Zushi; Toshiharu Nakanishi, Kamakura, and Miyo Suzuki, Fujisawa, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Continuation of Ser. No. 149,989, May 15, 1980, abandoned. This application Oct. 15, 1982, Ser. No. 434,713

Int. Cl.³ H01L *41/08*

U.S. Cl. 310—335 **20 Claims**



1. A piezoelectric ultrasonic vibration transducer comprising a series of vibration elements comprising a polymeric piezoelectric film sandwiched by electrode plates, a front surface of the series of vibrational elements being cylindrically concave about a common axis, the polymeric piezoelectric film being continuous through the series of vibrational elements, each of the series of vibrational elements forming an arc substantially perpendicular to the common axis.

4,424,466

CATHODE RAY TUBE WITH MULTIPOLE CORRECTION RING

Klaus W. M. P. Zeppenfeld, Heerlen, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

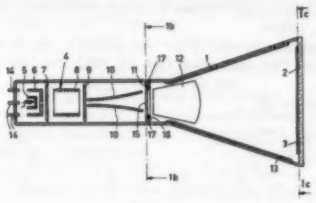
Filed Sep. 22, 1980, Ser. No. 189,468

Claims priority, application Netherlands, Oct. 2, 1979, 7907305

Int. Cl.³ H01J *29/74*

U.S. Cl. 313—433 **8 Claims**

1. A cathode ray tube comprising, in an evacuated envelope, a target, an electron gun for directing an electron beam onto the target, first and second deflection means for successively deflecting the electron beam in mutually perpendicular directions, and a permanently magnetized multipole ring positioned between the first deflection means and the target, said ring having a plurality of magnetic poles for producing a magnetic field which is a composite of magnetic fields for correcting respective errors in beam deflection.



4,424,467

CATHODE-RAY TUBE HAVING A MIXTURE OF LONG AND SHORT PERSISTENCE PHOSPHORS

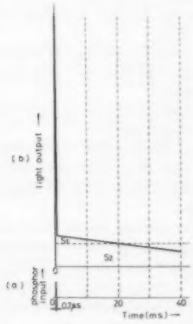
Mutsuo Masuda, Kyoto; Yasuyuki Takagi, and Shigeya Ashizaki, both of Takatsuki, all of Japan, assignors to Matsushita Electronics Corporation, Kadoma, Japan

Continuation of Ser. No. 164,935, Jul. 1, 1980, abandoned. This application Oct. 6, 1982, Ser. No. 433,007

Claims priority, application Japan, Jul. 4, 1979, 54-84647

Int. Cl.³ H01J *29/10*

U.S. Cl. 313—467 **7 Claims**



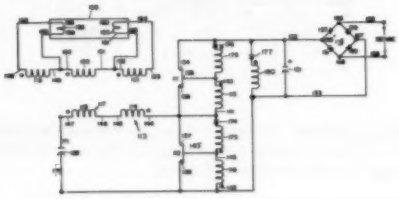
1. A cathode-ray tube having a phosphor screen consisting of a mixture of a long persistent phosphor having a one-tenth persistent time of 10 msec or more and a short persistent phosphor having a one-tenth persistent time of 1 μsec or less, said phosphor screen producing a monochromatic image in response to simultaneous one electron beam excitation of said long persistent phosphor and said short persistent phosphor, said monochromatic image comprising a sharp rise-up light image from the former and dull rise-up but long persistent light image from the latter.

4,424,468

INVERTER BALLAST CIRCUIT WITH SHOOT THROUGH PREVENTION, AUTO TRANSFORMER COUPLING AND OVERLOAD PREVENTION

Francis J. Zelina, and William B. Zelina, both of 6410 W. Ridge Rd., Pa. 16506

Continuation-in-part of Ser. No. 280,866, Jul. 6, 1981, abandoned. This application Oct. 19, 1981, Ser. No. 312,908
Int. Cl.[3] H05B 37/02
U.S. Cl. 315—222 7 Claims



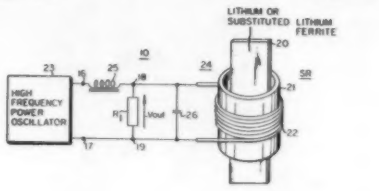
1. A circuit for driving a load comprising,
a resonant circuit,
a power supply,
an inverter circuit,
control means for actuating said inverter,
a first transformer having a winding,
a second transformer having a single primary winding, a first secondary winding and a second secondary winding,
a condenser,
a first electronic valve having an actuating means,
a second electronic valve having an actuating means,
said resonant circuit comprising said first transformer winding, said second transformer primary winding and said condenser connected in series with one another,
said inverter comprising said first electronic valve and said second electronic valve,
said first electronic valve being connected to said power supply and to said resonant circuit,
said second electronic valve being connected in series with said resonant circuit forming a loop,
said first secondary winding of said second transformer being connected to said actuating means on said first electronic valve,
said second secondary winding of said second transformer being connected to said actuating means of said second electronic valve,
said control means for actuating said inverter consisting of said second transformer,
said second transformer first secondary being adapted to actuate said first electronic valve connecting said power supply to said resonant circuit to charge said condenser to a first polarity.
said second transformer second secondary winding being adapted to actuate said second electronic valve connecting said resonant circuit into a loop allowing current to flow in said loop to charge said condenser to a second polarity when the current in said resonant circuit passes through zero,
and means on said circuit for connecting said first transformer winding to a load,
said second transformer having a third secondary winding and a fourth secondary winding,
said third secondary winding being connected to the actuating means on said second electronic valve and through a first diode to said first secondary,
said fourth secondary winding of said second transformer being connected to said actuating means on said first electronic valve and through a second diode to said power supply.

4,424,469

TELEVISION RECEIVER FERRORESONANT HIGH VOLTAGE POWER SUPPLY USING TEMPERATURE STABLE CORE MATERIAL

Babah Shahbender; Frank S. Wendt; Irwin Gordon, all of Princeton, N.J., and Robert J. Gries, Indianapolis, Ind., assignors to RCA Corporation, New York, N.Y.

Filed Apr. 2, 1981, Ser. No. 250,131
Int. Cl.[3] H01J 29/70
U.S. Cl. 315—411 11 Claims



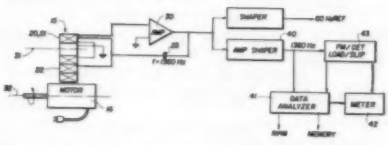
4. A saturating core power supply having an output voltage that is relatively temperature stable, comprising:
a source of alternating input voltage;
a saturating magnetic element including a magnetizable core and a winding located on said core;
means coupled to said source and to said winding for developing a magnetizing current that generates in said magnetizable core an alternating magnetic flux that links said winding so as to develop an alternating polarity output voltage;
a capacitance for developing a circulating current that generates a magnetic flux in a core section associated with said winding that aids in magnetically saturating said associated core section to regulate said alternating polarity output voltage; and
a load circuit coupled to and energized by said regulated alternating polarity output voltage,
wherein to provide temperature stability of said regulated output voltage, said magnetically saturating associated core section of said saturating magnetic element is formed of a magnetizable material comprising a ferrospinel selected from one of a lithium ferrite and a substituted lithium ferrite such that the magnitude of the fractional change of saturation flux density per degree centigrade exhibited by said magnetizable material over the normal operating temperature range of said power supply is equal to or less than 1.5 part per thousand per degree centigrade and such that the coercivity of said magnetizable material is equal to or less than 1.5 oersted.

4,424,470

MOTOR CONTROL CIRCUIT FOR RADIO CONTROLLED MODELS

Robert A. Finch, 19575 W. Martin Dr., Mundelein, Ill. 60060

Filed Feb. 25, 1982, Ser. No. 352,230
Int. Cl.[3] H02P 5/16; H04Q 7/02
U.S. Cl. 318—6 11 Claims



1. In a system for the radio control of motor driven models including a transmitter for transmitting a recurring control pulse having a duration controllable by an operator within a

predetermined range and a receiver for receiving said control pulses, a motor control circuit at said receiver comprising:

reference pulse generating means responsive to received control pulses for producing a reference pulse having a predetermined duration between the shortest and longest received pulse duration;

means for comparing the duration of each of said received control pulses with the duration of said reference pulse and producing a difference signal;

means including sample and hold circuit means for producing in response to said difference signal a D.C. reference voltage having an amplitude proportional to the difference in durations of said received control pulses and said reference pulse;

means including means for producing a sawtooth voltage and means for comparing said sawtooth voltage with said D.C. reference voltage for producing a D.C. voltage switched on and off with a duty cycle proportionally responsive to said D.C. reference voltage and variable from 0% to 100%; and

output means adapted to be connected in series with an electric motor and a D.C. voltage source for converting said switched D.C. voltage to switched direct current for driving the motor.

4,424,471
ELECTRICAL MOTOR

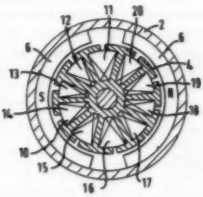
John W. Collen, Billericay, England, assignor to Ford Motor Company, Dearborn, Mich.

Filed Mar. 1, 1982, Ser. No. 353,754

Claims priority, application United Kingdom, Mar. 10, 1981, 8102562

Int. Cl.³ H02K *29/02*

U.S. Cl. 318—138 **1 Claim**



1. An electrical motor comprising a rotor carrying a plurality of permanent magnetic poles, a generally cylindrical stator with a circumference carrying at least two main windings which, when activated, interact with the magnetic fields generated by the said poles to drive the rotor relative to the stator, and electronic switching means for activating the main windings, in sequence in accordance with the rotational position of the rotor characterized in that the electronic switching means comprises search windings on the stator each associated with a respective one of the main windings and arranged to interact with the magnetic field generated by the said poles, and switches for each main winding operable by the search winding associated therewith to activate the main windings for different periods;

one of said at least two main windings occupying a greater part of the circumferential length of the stator than any other of said at least two main windings so that said at least two main windings provide an unequal force to facilitate rotation of said rotor;

each of said switches including a power transistor for conducting current through the main winding, and a drive transistor for controlling the conductive state of the power transistor and each of said switches being operable in response to current induced in the search winding by the main winding; and

said search windings being connected into switch circuits having different time constants, at least one search winding being coupled in series with a bias resistor thereby reducing the time constant for causing switching and at least one search winding being coupled in parallel with a capacitor thereby increasing the time constant for causing switching, so that at least two search windings have different associated time constants to insure rotation of the rotor in a predetermined direction.

4,424,472
PROGRAMMABLE ROBOT

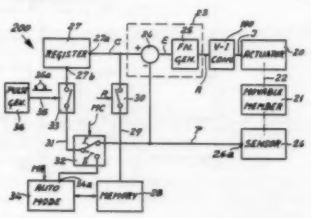
Jacques Jacot-Descombes, Geneveys-sur-Coffrane, and Jean-Luc Monnier, Neuchatel, both of Switzerland, assignors to Microbo, S.A., Switzerland

Filed Oct. 7, 1981, Ser. No. 309,265

Claims priority, application Switzerland, Oct. 10, 1980, 7568/80

Int. Cl.³ G05B *19/42*

U.S. Cl. 318—568 **8 Claims**



1. A programmable robot, including at least one movable member which is displaceable with respect to a reference position in the direction of a corresponding degree of freedom and at least one corresponding control unit, said at least one control unit comprising a sensor responsive to the position of said movable member with respect to the reference position to furnish a positional datum representing said position of the movable member; a control system comprising means for producing a command datum and means responsive to said positional and command data to calculate an error datum and to produce a control signal the amplitude of which is a function of the error datum; an actuator responsive to said control signal to displace said movable member with respect to said reference position, so as to tend to eliminate the error; memory means responsive to a first external action to store said positional datum of the movable member; and mode-selecting means responsive to a second external action for selectively enabling a training mode of said control system wherein said command datum used for the calculation of said error datum is kept constant during each interval of time between two consecutive ones of successive instants, at each of them said command datum is rendered identical with said positional datum.

4,424,473
DRIVE APPARATUS FOR AN INDUSTRIAL ROBOT

Robert H. Gorman, Kernersville, N.C., assignor to American Robot Corporation, Pittsburg, Pa.

Filed Feb. 5, 1982, Ser. No. 346,222

Int. Cl.³ G05B *19/42*

U.S. Cl. 318—568 **18 Claims**

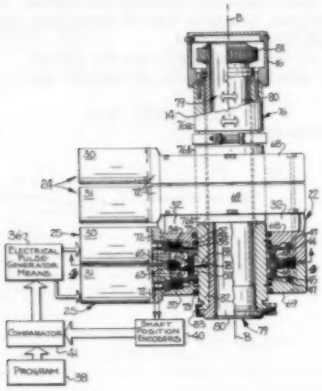
1. An industrial robot comprising at least one element which is operatively connected to a second element for relative movement about an axis, and including a drive apparatus for effecting relative movement of the two elements about said axis and which is characterized by the ability to permit accurately controllable movement of the two elements relative to each other, and by the ability to function as a readily controllable transmission, said drive apparatus comprising:

a pair of electrical stepping motors fixedly mounted to one

of said elements, with each motor having an output shaft mounting a drive gear,

drive control means for selectively operating each of said motors, and operating at least one of said motors at a variable rotational speed,

a pair of gear wheels, with each gear wheel disposed coaxially about said axis and having two face gears, with one face gear of each wheel operatively meshing with respective ones of said drive gears and so that each motor is adapted to rotate its associated gear wheel about said axis,



pinion gear means mounted to the other of said elements, with said pinion gear means being positioned between and operatively meshing with the second face gear of each of said gear wheels,

whereby accurately controllable relative movement of the two elements may be achieved by operating the motors at speeds which produce slightly different rotational speeds in the two gear wheels, and the speed of relative movement between the two elements may be varied by varying the speed of said one controllable motor.

4,424,474

METHOD AND CIRCUIT ARRANGEMENT FOR CONTROLLING THE R.P.M. OF A THREE-PHASE MOTOR

Walter Dürr, Offenbach; Dietrich Weisse, Waibstadt; Ulrich Simon, Dreieich, and Friedwalt von Neufville-Schoepflin, Kelkheim, all of Fed. Rep. of Germany, assignors to Firma IWE Ingenieurgellschaft fuer wirtschaftliche Energienutzung mit beschraenkter Haftung, Neu-Isenburg, Fed. Rep. of Germany

Filed Dec. 2, 1981, Ser. No. 326,907

Claims priority, application Fed. Rep. of Germany, Dec. 10, 1980, 3046406

Int. Cl.³ H02P *5/40*

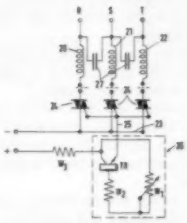
U.S. Cl. 318—798 **15 Claims**

1. A method for controlling the r.p.m. of a multi-phase electric motor having motor windings connected in a Y-circuit or star circuit including a star point, and operated by a multi-phase power supply source connectable to respective motor windings, comprising the following steps:

(a) sensing current variations in said star point by a controllable diode circuit means having a single common control input;

(b) converting said current variations into voltage variations representing the current flow through the motor windings;

(c) and controlling in an on-off manner with a single controlling circuit connected to said single control input the time durations during which the multi-phase power supply is connected to and disconnected from the motor windings by the conduction and non-conduction of said diode circuit means as a function of said voltage variations



whereby the motor r.p.m. is reduced in response to a decreasing current flow through the motor windings.

4,424,475

APPARATUS FOR CONTROLLING A STATIC AC/AC THYRISTOR CONVERTER WHICH FEEDS A SYNCHRONOUS ROTATING MACHINE AT A VARIABLE FREQUENCY

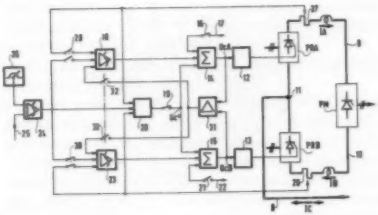
Henri Godfroid, Valdoie, France, assignor to CGEE Alsthom, Levallois-Perret, France

Filed May 21, 1982, Ser. No. 380,599

Claims priority, application France, May 27, 1981, 81 10613

Int. Cl.³ H02P *5/34;* **H02M** *5/45*

U.S. Cl. 318—803 **3 Claims**



1. A control apparatus for controlling a static AC/AC thyristor converter for supplying power to a synchronous rotating machine, said converter comprising a machine bridge, a mains bridge connected to receive power from a transformer, first and second conductors connecting said machine bridge and said mains bridge, and an auxiliary connection for returning point current from a neutral point of said synchronous machine to said transformer via said auxiliary connection, said control apparatus comprising:

a speed regulator for supplying an average reference current;

a comparator circuit for comparing said average reference current with a sum of currents flowing in said first and second conductors;

current regulator means for controlling said current flowing on said first and second conductors;

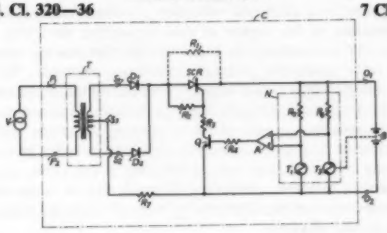
pulse control means; and

summing means receiving as a first input an output of said comparator circuit, as a second input an output of said current regulator means, and as a third input a signal for controlling full opening of said converter, an output of said summing means being applied via said pulse control means to control said mains bridge, wherein said sum of said currents flowing in said first and second conductors is maintained equal to said reference value.

4,424,476
CONTROLLED FAST CHARGER

Ferdinand H. Mullersman, Gainsville, Fla., assignor to General Electric Company, Gainesville, Fla.

Filed Jan. 16, 1981, Ser. No. 225,609
Int. Cl.³ H02J *7/10*
U.S. Cl. 320—36 **7 Claims**



1. Apparatus for supplying a controlled charging current to a sealed rechargeable cell comprising:

(a) means connectable to an external electrical source for providing charging current;

(b) controllable switching means connected in series between said charging current means and said rechargeable cell and being operable between a conducting state, wherein said charging current is supplied to said cell, and a non-conducting state wherein said charging current is interrupted;

(c) thermal sensing means including first means in thermal proximity to said rechargeable cell for sensing the temperature of said rechargeable cell, and second means for sensing the ambient temperature; and

(d) switching control means responsive to said thermal sensing means for maintaining said switching means in the conducting state, and thereby providing a path for the delivery of said charging current to said rechargeable cell, until the cell temperature exceeds the ambient temperature by a predetermined amount and thereafter maintaining that temperature difference.

4,424,477
APPARATUS FOR PREVENTING A VEHICLE BATTERY FROM BEING OVERDISCHARGED

Toshio Enoshima, Fujisawa, and Jun-ichi Kuro, Yokohama, both of Japan, assignors to Nissan Motor Company, Ltd., Yokohama, Japan

Continuation of Ser. No. 64,184, Aug. 6, 1979, abandoned. This application Nov. 16, 1981, Ser. No. 321,566
Claims priority, application Japan, Aug. 15, 1978, 53-111243
Int. Cl.³ H02J *7/32*
U.S. Cl. 320—61 **15 Claims**

12. An apparatus for preventing a battery of a vehicle from being overdischarged, comprising:

(a) first means for measuring the voltage of said battery while an engine of said vehicle is running;

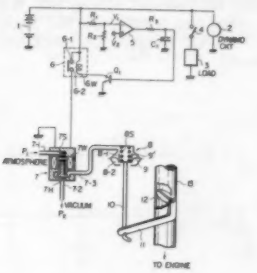
(b) second means responsive to said first means for generating an electric ouput signal when the battery voltage is below a predetermined value; and

(c) third means responsive to said second means for raising the engine crankshaft rotational speed from an idling speed, defined as occurring when the engine is idling, to a predetermined higher speed when the voltage of said battery is below said predetermined value, wherein said third means comprises:

an electromagnetic valve assembly having first and second input ports respectively communicating with atmosphere and vacuum pressure and an output port;

a diaphragm assembly having first and second chambers respectively communicating with said output port of said electromagnetic valve assembly and atmosphere; and

linkage means operatively connected to the diaphragm of said diaphragm assembly and a throttle flap for opening

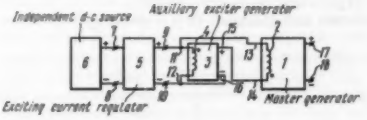


the throttle flap to a predetermined angle when the angle of the throttle flap is below said predetermined angle.

4,424,478
DEVICE FOR EXCITING MASTER GENERATOR OF SELF-CONTAINED POWER UNITS FOR TRANSPORTATION FACILITIES

Eliazar Y. Bukhshtaber, 9 Parkovaya, 47, korpus 1, kv. 37; Jury M. Andreev, Nagatinskaya, 15, korpus 1, kv. 53; Mikhail P. Askinazi, Trifonovskaya ulitsa, 60, korpus 2, kv. 73; Anatoly D. Mashikhin, ulitsa Marshala Timoshenko, 28, kv. 45; Egor P. Plotnikov, Stavropolskaya ulitsa, 54, korpus 2, kv. 34, and Vitaly I. Anders, ulitsa Gorkogo, 6, kv. 281, all of Moscow, U.S.S.R.

Filed Jan. 7, 1981, Ser. No. 223,048
Int. Cl.³ H02P *9/14, 9/30*
U.S. Cl. 322—63 **5 Claims**



1. A device for exciting a master generator of self-contained power units for transportation facilities comprising:

a master generator with output terminals;

a first excitation winding of said master generator with leads;

an auxiliary exciter generator with d-c leads electrically coupled to said leads of said first excitation winding of said master generator;

a second excitation winding of said auxiliary exciter generator with leads;

an independent d-c source whose poles are electrically coupled to said leads of said second excitation winding of said auxiliary exciter generator to permit exciting current flow from said independent d-c source;

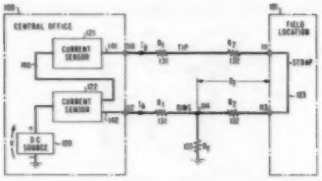
an exciting current regulator electrically coupled to said auxiliary exciter generator and to said independent d-c source;

the first of said leads of said first excitation winding of said master generator electrically coupled to the first of said d-c leads of said auxiliary exciter generator through its second excitation winding connected in series with said auxiliary first excitation winding of said master generator so that current from said exciter generator flows through said second excitation winding of said auxiliary exciter generator in the same direction as said exciting current from said independent d-c source.

4,424,479
LOOP FAULT LOCATION

James M. Brown, Chatham, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 5, 1981, Ser. No. 308,417
Int. Cl.³ G01R 31/08; H04B 3/46
U.S. Cl. 324—52 5 Claims



1. Wire-pair apparatus for testing a single-sided fault (R_F) coupled to ground and located between first (101) and second (100) test positions along a wire-pair have a good wire (TIP) and a faulty wire (RING) and for determining the resistance (R_2) between said fault and said first test position, said apparatus

characterized by

means (123) at said first position for shorting said pair; and

means (120–122,140–146) at said second position comprising

a DC voltage source (120), of a preselected value (V) referenced to said ground,

shunt means (121,122,140–142) for applying said source simultaneously to said wires and means (121 and 122) for measuring the DC current (I_B) in said good wire and the current difference (I_A–I_B) between the DC currents flowing in both said wires, and

serial means (121,122,143–146), operatively alternately with said shunt means, for applying said source to said good wire and means (121 and 122) for measuring the DC current (I_C) in said good wire and the DC current (I_D) in said faulty wire (RING),

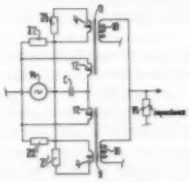
wherein said resistance (R_2) is given by

$$R_2 = \frac{\frac{V}{2I_C}((I_A - I_B)/I_B)}{\frac{I_A}{I_B} + \frac{I_D}{I_C}}$$

4,424,480
PROCESS FOR THE MEASUREMENT OF THE SPECIFIC CAPACITY OF A CABLE AND A DEVICE FOR CARRYING OUT THE PROCESS

Zgorski Stefan, Biel, Switzerland, assignor to Zumbach Electronic AG, Orpund, Switzerland

Continuation of Ser. No. 193,662, Oct. 3, 1980, abandoned. This application Feb. 1, 1983, Ser. No. 462,903
Claims priority, application Switzerland, Oct. 15, 1979, 9260/79
Int. Cl.³ G01R 11/52
U.S. Cl. 324—60 C 17 Claims

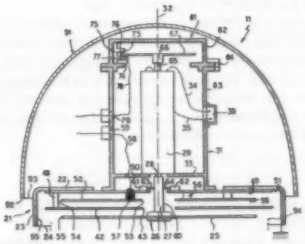


1. In a device for use in the measurement of the specific capacity of an electric cable, said device comprising a measuring electrode through which the cable can be fed in an axial direction; means for applying an alternating voltge between the said measuring electrode and the conductor of the cable; screening electrodes arranged coaxially at each side beyond said measuring electrode, whereby a uniform electric field is maintained in the region of said measuring electrode; and means for determining the capacitive current flowing between the cable conductor and said measuring electrode, the improvement wherein said current determining means comprises a pair of current sensing devices, spaced apart disposed respectively between an end of the measuring electrode and the contiguous respective screening electrode in order to enable sensing of the electric current flowing in the cable at their respective locations; and means for producing an output signal representative of the difference between the currents sensed by said sensing devices.

4,424,481
APPARATUS FOR MEASURING AN ELECTRICAL FIELD

Pierre A. R. M. Laroche, Corbeil; Roland J. Hoarau, l'Hay les Roses, and Patrice G. M. Brault, Lorient, all of France, assignors to Office National d'Etudes et de Recherchés Aerospatiales (O.N.E.R.A.), Chatillon, France

Filed Feb. 20, 1981, Ser. No. 236,618
Claims priority, application France, Feb. 22, 1980, 80 04017
Int. Cl.³ G01R 31/02
U.S. Cl. 324—72 12 Claims



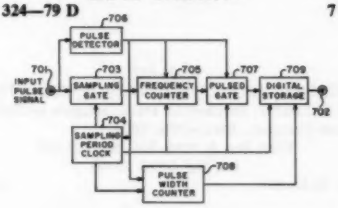
1. An electrical field sensing apparatus, particularly for measuring the atmospheric electrical field, comprising: a housing; a fixed detection electrode; a rotating modulator; a fixed screen having apertures formed therein and made out of an electrically conductive material connected to the housing, said fixed screen being interposed between said detection electrode and said rotating modulator, and said fixed screen being wider than said detection electrode for protecting said detection electrode against the influence of the measured electrical field when the apertures in said fixed screen are covered by the rotating modulator; a driving motor for the modulator; a metallic cup for housing the electrode modulator and screen, the metallic cup having an opening turned downwardly, with the modulator being positioned closest to the opening of the cup; metallic legs for positioning the metallic cup above a surface on which the legs rest; a cylindrical casing fixedly connected at one end to the cup for containing the driving motor of the modulator; a cover connected to the end of the cylindrical casing opposite the cup and angularly adjustable in position relative to the casing; and an opto-electrical device including a light source, a photo-electrical receiver, and a toothed disc rigidly connected to the driving motor, interposed between the light source and the photo-electrical receiver and carried by the cover.

4,424,482

ADAPTIVE BANDWIDTH SIGNAL ENCODER

Edwin M. Drogin, Dix Hills, N.Y., assignor to Eaton Corporation, Cleveland, Ohio

Filed Sep. 14, 1981, Ser. No. 302,194
Int. Cl.³ G01R 23/14
U.S. Cl. 324—79 D 7 Claims



1. Apparatus for encoding a pulse signal, comprising:

(a) means for dividing the pulse signal into a series of contiguous sampling periods, said means for dividing being connected to receive the pulse signal as an input and provide the divided pulse signal as an output,

(b) means for counting the number of cycles within each sampling period, said means for counting the number of cycles being connected to receive the divided pulse from the means for dividing as an input and provide the count of cycles within each sampling period as an output, and

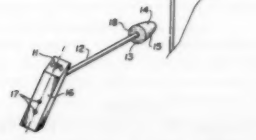
(c) means for encoding and storing the number of cycles within each sampling period and identifying the particular sampling period for which the data is being stored, said means for encoding being connected to the means for counting the number of cycles to receive the count within each period.

4,424,483

MICROWAVE RADIATION MONITOR

Edward E. Aslan, Plainview, N.Y., assignor to The Narda Microwave Corporation, Hauppauge, N.Y.

Filed Apr. 16, 1981, Ser. No. 254,590
Int. Cl.³ G01R 21/10, 19/22; H01Q 1/36
U.S. Cl. 324—95 9 Claims



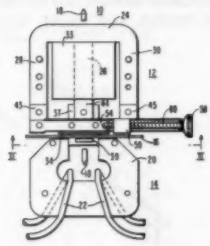
1. A microwave radiation monitor comprising: a dual Archimedean spiral antenna defined by $r=a\theta$, wherein r is the radius from the center to a point on the curve of the spiral, a is a constant, and θ is the angle of rotation in radians; means for orienting said antenna with and responsive to an electric field to generate currents therein, the currents in adjacent turns being in-phase and out-of-phase at predetermined radial positions of r and θ; resistive means proximate to at least one pair of said adjacent turns and coupled thereto in a region where the currents in the adjacent turns are out-of-phase; and detecting means coupled to the inner ends of said spiral antenna operative to measure the signal therebetween.

4,424,484

INDUCTION METER HAVING AN IMPROVED ELECTROMAGNETIC VOLTAGE SECTION

James E. Ramsey, Jr., Raleigh, N.C., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 10, 1981, Ser. No. 272,245
Int. Cl.³ G01R 11/02
U.S. Cl. 324—137 4 Claims



1. An induction meter including a voltage magnetic section and a current magnetic section each producing magnetic flux and a rotatable disk driven at a rate responsive to said magnetic flux directed from said magnetic sections into said disk, wherein said voltage magnetic section comprises:

a substantially E-shaped laminated magnetic core having a center leg terminating at a main pole face and two adjacent legs terminating at coplanar auxiliary pole faces on opposite sides of said main pole face, said first and last laminae defining first and second sides, respectively, of said core;

a voltage coil wound about said center leg;

a nonmagnetic member supported by said core and extending from one of said adjacent legs to said other adjacent leg, said member having three perpendicular extensions with each extension corresponding to one of said legs, said member being oriented so as to be adjacent said first side and having one edge substantially coplanar with said auxiliary pole faces, said extension corresponding to said center leg providing support for said voltage coil;

means supported by said core for providing an adjustable shunt path for magnetic flux between said main pole face and said auxiliary pole faces, said means located in magnetic proximity to said first side and separated therefrom by said nonmagnetic member;

a power factor bracket extending from said second side of said magnetic core; and

a flux return tongue carried by said power factor bracket and located opposite said main pole face and maintaining a spaced relationship therewith, said disk rotating in said space.

4,424,485

FIXED LIGHT LOAD ADJUSTMENT ASSEMBLY FOR INDUCTION METERS

William J. Zisa, Cary, N.C., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 10, 1981, Ser. No. 272,243
Int. Cl.³ G01R 11/02
U.S. Cl. 324—137 8 Claims

1. An induction meter including a voltage and current magnetic sections each producing magnetic flux and a rotatable disk driven at a rate responsive to said magnetic flux directed from said magnetic sections into said disk, wherein said voltage magnetic section comprises:

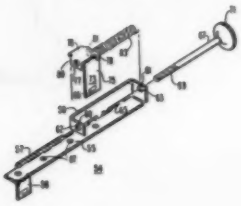
a substantially E-shaped laminated magnetic core having a center leg terminating at a main pole face and two adjacent legs terminating at coplanar auxiliary pole faces on opposite sides of said main pole face, said first and last

laminae defining a first and a second side, respectively, of said core;

a voltage coil wound about said center leg;

a fixed light load adjuster bracket located in magnetic proximity to said first side, said bracket having a fixed tab extending over a portion of one of said auxiliary pole faces and means for supporting a screw;

a non-magnetic spacer separate from said light load adjuster bracket located between said first side and said light load adjuster bracket, said spacer, said light load adjuster



bracket and said laminae of said core being fastened together so as to provide a rigid assembly;

a screw carried by said bracket screw support means; and

a movable tab located in proximity to said bracket and having a threaded portion cooperating with said screw, said movable tab being oriented so as to extend over adjustable portions of said other auxiliary pole face and said main pole face thereby providing an adjustable magnetic flux shunt path, said bracket and said tabs acting as an additional magnetic flux shunt path.

4,424,486

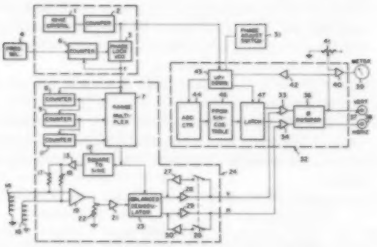
PHASE ROTATION CIRCUIT FOR AN EDDY CURRENT TESTER

Clyde J. Denton, Bellevue, and Lloyd T. Lamb, Issaquah, both of Wash., assignors to Zetec, Inc., Issaquah, Wash.

Filed Oct. 14, 1980, Ser. No. 196,197

Int. Cl.³ G01N *27/72*; G01R *33/12*; H03L *7/00*

U.S. Cl. 324—225 **6 Claims**



6. A phase rotation circuit comprising:

means for providing a calibration signal and a test signal;

means for determining the sine and cosine of the phase angle of said calibration signal including normally unpowered memory means for storing a table of sine and cosine values, and means for selectively supplying power to said memory means;

multiplying means for forming the products of said sine and cosine and the resistive and reactive components of said test signal; and

phase rotator means for combining said products to produce a phase rotator output rotated by the phase angle from said test signal such that said phase rotator has a reactive phase rotator output component equal to the difference of said reactive test signal component and said reactive calibration signal component.

4,424,487

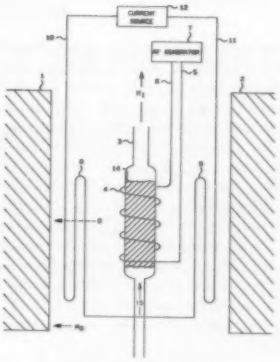
DISPERSION COEFFICIENT DETERMINATION

Donald E. Lauffer, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jun. 2, 1981, Ser. No. 269,204

Int. Cl.³ G01R *33/08*

U.S. Cl. 324—307 **8 Claims**



1. A method for determining the dispersion coefficient of fluid in porous media comprising

(a) positioning a sample representative of said porous media in an NMR spectrometer,

(b) causing said fluid to flow through said so positioned sample, said fluid being capable of exhibiting a detectable response in an NMR spectrometer measurement,

(c) carrying out an NMR spin echo measurement while said fluid is glowing and while said flowing fluid is subjected to a magnetic field gradient and obtaining a spin echo signal,

(d) determining the dispersion coefficient from the spin echo signal obtained.

4,424,488

NUCLEAR MAGNETIC RESONANCE APPARATUS

Godfrey N. Hounsfield, Newark, England, assignor to Picker International Limited, Wembley, England

Filed May 19, 1981, Ser. No. 265,165

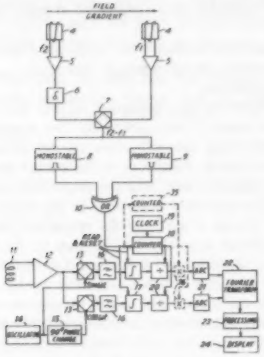
Claims priority, application United Kingdom, May 21, 1980, 8016808

Int. Cl.³ G01R *33/08*

U.S. Cl. 324—309 **7 Claims**

1. A method of operating an NMR imaging system in which there is applied a pulsed field having a gradient in a direction lying in a cross-sectional slice of a body being examined, the nuclei in said slice having been selectively excited to resonance, the resonance signal is sensed during the pulsed field, the sensed signal is sampled and the samples analysed by a method including Fourier transformation, the sampling inter-

val being varied with time in such a way that the higher frequencies after transformation orginate from a sampling which



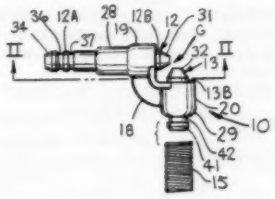
is more widely spaced than the sampling producing the lower spatial frequencies.

4,424,489

ENGINE ELECTRICAL SYSTEM TEST DEVICE

Richard W. Gray, Box 211B, Howe, Ind. 46746

Filed Sep. 15, 1981, Ser. No. 302,272
Int. Cl.³ F02P *17/00*
U.S. Cl. 324—396 **4 Claims**



1. In a spark ignition engine tester for inserting between normally interconnected pairs of releasable connectors in the high voltage portion of the engine's spark ignition system, the combination comprising:

first and second electrodes having adjacent ends spaced by a visible spark gap and remote ends for temporary electrical interposition of said tester between a said pair of releasable ignition system connectors;

an insulator element fixedly carrying said electrodes intermediate the ends of each electrode, the length axes of said electrodes being at right angles to each other; and

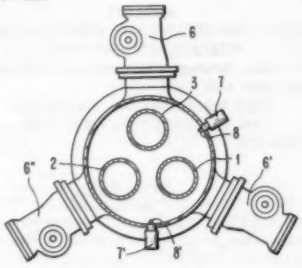
a resilient conductive member releasably connectible with a said remote electrode end for in turn effecting temporary connection to one of said pair of releasable ignition system connectors, said insulator element being substantially L-shaped in profile with two legs substantially at right angles to each other, said electrodes extending through respective ones of said legs at right angles thereto, said legs and electrodes being substantially coplanar, said insulator element being a one-piece molded plastic element of T cross section intermediate the remote ends of said legs, the ends of said legs comprising substantially cylindrical bosses receiving said electrodes fixedly therethrough, wherein said spark gap is at the concave side of said L, said insulator element having a rib at the convex side of said L, said bosses extending beyond said rib, one said boss and its corresponding electrode remote end being longer than the other.

4,424,490

HIGH VOLTAGE PROBE FOR GAS INSULATED HIGH VOLTAGE SWITCHING INSULATION

Manfred Mamet; Dietrich Fischer; Gerhard Tuemmler, and Detlev Niederhuefner, all of Berlin, Fed. Rep. of Germany, assignors to Siemens AG, Berlin and Munich, Fed. Rep. of Germany

Filed Jul. 29, 1981, Ser. No. 287,911
Claims priority, application Fed. Rep. of Germany, Aug. 4, 1980, 3029778
Int. Cl.³ G01R *31/02*
U.S. Cl. 324—424 **6 Claims**



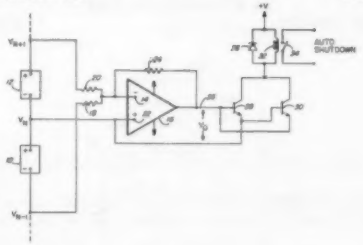
1. In a metal-clad, compressed gas-insulated high-voltage switching three-phase installation having three conductors within a casing, wherein installation parts can be cut off electrically by circuit breakers and can be connected with the grounded casing by means of a grounding switch, two pin-type insulated measuring electrodes provided in the casing adjacent to said grounding switch, means connected to said electrodes for transmitting an indication of the presence or absence of conductor voltage within said casing, said measuring electrodes being positioned respectively centrally between different pairs of the three conductors, one end respectively of said electrodes protruding into the interior of said casing.

4,424,491

AUTOMATIC VOLTAGE IMBALANCE DETECTOR

Ronald E. Bobbett; J. Byron McCormick, both of Los Alamos, N. Mex., and William J. Kerwin, Tucson, Ariz., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 20, 1981, Ser. No. 265,319
Int. Cl.³ G01N *27/46*
U.S. Cl. 324—433 **3 Claims**



1. A device for indicating malfunction of at least one voltage cell in a plurality of voltage cells connected in series comprising:

means for adding the voltage magnitudes of two adjacent voltage cells of said plurality of voltage cells connected in series at upper and lower voltage points to obtain a sum voltage;

means for comparing said sum voltage with a central voltage between said two adjacent voltage cells to obtain an error

voltage proportional to the difference between said sum voltage and said central voltage; and

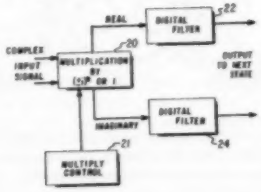
switching means for providing an output whenever said error voltage exceeds a predetermined magnitude indicative of a malfunction of at least one of said voltage cells, said switching means having a first transistor connected to conduct whenever said error signal exceeds a predetermined positive voltage and a second transistor connected to conduct whenever said error signal exceeds a predetermined negative voltage.

4,424,492

APPARATUS AND MEANS FOR HIGH SPEED DIGITAL FREQUENCY SHIFTING

Ronald W. Potter, Saratoga, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Feb. 8, 1982, Ser. No. 347,113
Int. Cl.³ H03K 5/00; H03L 7/00
U.S. Cl. 328—155 **7 Claims**



1. A method of frequency shifting a digital input signal separated into its complex components of a real part and an imaginary part comprising the steps of:

sampling said input signal at a predetermined rate to obtain n samples, n being an integer; and

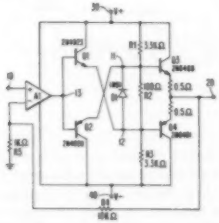
digitally processing each of said samples substantially only by equivalently multiplying said sample by one of $(i)^n$ $(-i)^n$, where n corresponds to the nth sample and i is the square root of -1.

4,424,493

CROSS-COUPLED COMPLEMENTARY POWER AMPLIFIER

John O. Schroeder, Trenton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 27, 1981, Ser. No. 296,866
Int. Cl.³ H03F 3/18, 3/30
U.S. Cl. 330—263 **6 Claims**



1. A linear complementary symmetry common emitter amplifier circuit comprising:

first and second transistors of a first conductivity type and third and fourth transistors of a second conductivity type, said first, second, third and fourth transistors each having respective first, second and control electrodes, respective principal conduction paths between their respective first and second electrodes and wherein the principal conduction path of each transistor is controlled by potential applied between their respective control and first electrodes;

first and second terminals for applying relatively positive and relatively negative supply potential;

an output terminal;

means connecting the respective second electrodes of the first and second transistors to the first terminal;

means connecting the respective second electrodes of the third and fourth transistors to the second terminal;

respective means connecting the respective first electrodes of the first and third transistors to the output terminal;

respective means connecting the respective first electrodes of the second and fourth transistors to the control electrodes of the third and first transistors respectively;

means for applying a signal potential to the control electrodes of the second and fourth transistors; and

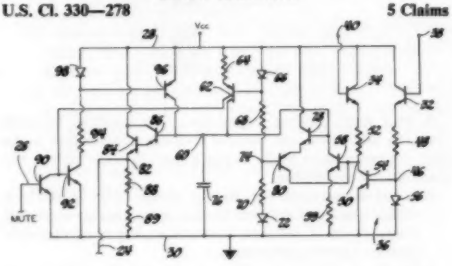
means connected between the control electrodes of the first and third transistors, said means exhibiting substantially linear resistance for potentials occurring between the control electrodes of the first and third transistors having less than a prescribed threshold potential and exhibiting a small resistance relative to said linear resistance for potentials between said control electrodes in excess of said threshold potential.

4,424,494

AUTOMATIC GAIN CONTROL CIRCUIT

Fredrick A. Aldridge, Russiaville, and Burtron D. Schertz, Kokomo, both of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 17, 1981, Ser. No. 331,662
Int. Cl.³ H03G 3/10
U.S. Cl. 330—278 **5 Claims**

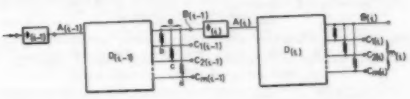


1. An AGC circuit having first and second input terminals for receiving a differential input and having an output terminal, said circuit comprising a current source, a capacitor coupled to said current source, a transistor having its emitter-collector path connected in parallel with said capacitor, voltage divider means establishing a reference voltage at a reference node, means responsive to the voltage at said reference node for forward biasing said transistor to establish a substantially constant quiescent voltage across said capacitor related to said reference voltage, means applying the voltage across said capacitor to said output terminal, threshold detecting means connected between said first and second input terminal and the base of said transistor and responsive to said differential input for switching said transistor at the frequency of said input whenever the peak-to-peak voltage of said input reaches a predetermined value to thereby vary the voltage at said output terminal.

4,424,495
RADIO POWER DISTRIBUTOR AND RADIO EQUIPMENT USING SUCH A DISTRIBUTOR, PARTICULARLY IN THE SOLID STATE

Alain Bert, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Dec. 19, 1980, Ser. No. 218,101
Claims priority, application France, Jan. 15, 1980, 80 00845
Int. Cl.³ H03F 3/60
U.S. Cl. 330—286 13 Claims

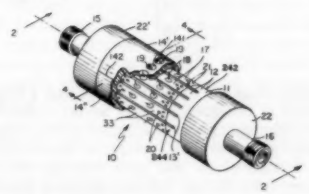


1. A radio power distributor, comprising
(a) a plurality of dividers (FIG. 2; D(i−1); D(i)), each having an input (A(i−1); A(i)), and a plurality of outputs (B(i−1), C_1(i−1), C_2(i−1), C_m(i−1); B(i), C_1(i), C_2(i), C_m(i));
(b) said dividers being connected in cascade with one output of one divider (B(i−1) of D(i−1)) connected to the input of the next divider (A(i) of D(i));
(c) a plurality of dissipative elements (between a–b, a–c, a–d);
(d) each of the other outputs (C_1(i−1), C_2(i−1), C_m(i−1) of said one divider D(i−1)) being connected by a different one of said dissipative elements to said one output (B(i−1) of said one divider D(i−1)); and
(e) each of said other outputs (C_1(i−1), C_2(i−1), C_m(i−1) of said one divider D(i−1)) being adopted to be connected to a load.

4,424,496
DIVIDER/COMBINER AMPLIFIER

Lawrence J. Nichols, Burlington, and George H. MacMaster, Lexington, both of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Oct. 13, 1981, Ser. No. 310,011
Int. Cl.³ H03F 3/60
U.S. Cl. 330—286 12 Claims

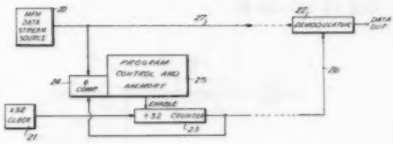


1. A microwave amplifier comprising:
a first waveguide means;
an amplifying means connected to said first waveguide means to form a waveguide amplifier having an input and an output;
a plurality of said waveguide amplifiers having their inputs and outputs connected in parallel;
means adjacent said first waveguide providing a second waveguide between each pair of adjacent first waveguides of said waveguide amplifiers which prevents the operating mode of each of said waveguide amplifiers from propagating through said second waveguide means;
a microwave absorber terminating each second waveguide; and
said absorber absorbing the microwave energy transmitted through said second waveguide from said first waveguide means.

4,424,497
SYSTEM FOR PHASE LOCKING CLOCK SIGNALS TO A FREQUENCY ENCODED DATA STREAM

Michael W. Fellinger, Boulder, Colo., assignor to Monolithic Systems Corporation, Englewood, Colo.

Filed Apr. 30, 1981, Ser. No. 259,020
Int. Cl.³ H03L 7/08; H03D 3/18
U.S. Cl. 331—1 A 12 Claims

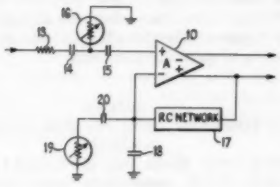


1. In a system having a frequency encoded data stream, a clock having an output at a given nominal frequency for demodulating the data stream, and means for phase locking the clock to the data stream; the improvement wherein said clock comprises a source of clock signals at a frequency that is a multiple of said nominal frequency, and dividing means for dividing said clock signals to produce said output, and wherein said means for phase locking comprises a phase comparator for comparing said output and data stream, and means responsive to the output of said comparator for selectively inhibiting or double counting in said dividing means.

4,424,498
ADAPTIVE EQUALIZER

James A. Murray, Sawbridgeworth, and David Nyman, New Barnet, both of England, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Nov. 27, 1981, Ser. No. 325,446
Claims priority, application United Kingdom, Dec. 18, 1980, 8040502
Int. Cl.³ H04B 3/04; H03H 11/06
U.S. Cl. 333—18 2 Claims



1. An adaptive equalizer for use with a telephone line, comprising:
differential amplifier means having a fixed internal gain to one input of which the line is connected when the equalizer is in use;
feedback loop means connected from one output of the amplifier to the other input thereof, said loop interconnecting an output of one polarity and an input of the other polarity; and
first adjustable impedance means connected to one input of the amplifier and second adjustable impedance means connected to the other input of the amplifier, whereby the first adjustable impedance is automatically adjusted in accordance with line conditions to compensate for variations in line attenuation, and whereby the second adjustable impedance is automatically adjusted to compensate

for variations in the frequency characteristics of the line, and wherein each adjustable impedance means includes a diode having an impedance which is variable in accordance with the current flowing therethrough.

4,424,499

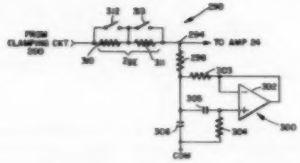
EQUALIZER CIRCUIT FOR A REPEATER

Frederick J. Kiko, Shenandoah, Ga., assignor to Reliance Electric Company, Cleveland, Ohio

Division of Ser. No. 120,125, Feb. 11, 1980, Pat. No. 4,331,842. This application Nov. 12, 1981, Ser. No. 320,656

Int. Cl.³ H03H *7/03*

U.S. Cl. 333—28 R **3 Claims**



1. An equalizer for flattening a signal frequency response for a predetermined frequency range have an upper limit comprising:

(a) first, second and third nodes;

(b) an impedance means connected between said second and third nodes, said impedance means including at least a tank circuit tuned to said upper limit and having a frequency dependent impedance which is a maximum at said tuned frequency, an output signal voltage being developed across said impedance means in response to an input signal voltage being applied across said first and third nodes;

(c) a plurality of binary weighted resistance means connected in series with each other between said first and second nodes; and

(d) a plurality of separately operable switching means each coupled across a respective one of said plurality of resistance means, said switching means ordinarily bypassing said respective one of said resistance means and said switching means being selectively operable for removing said bypass to thereby attenuate said input signal in a plurality of equal db increments.

4,424,500

BEAM FORMING NETWORK FOR A MULTIBEAM ANTENNA

Raymond D. Viola, Oyster Bay, and Gerard L. Hanley, Melville, both of N.Y., assignors to Sperry Corporation, New York, N.Y.

Filed Dec. 29, 1980, Ser. No. 220,228

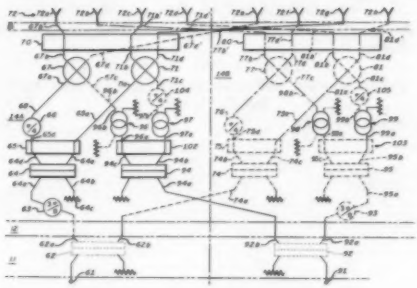
Int. Cl.³ H01P *3/08, 5/12*

U.S. Cl. 333—128 **7 Claims**

1. An apparatus having a multiplicity of co-planar input ports numbering n and a plurality of co-planar output terminals numbering m wherein each of the n input ports are coupled to all of the m output terminals such that an excitation coupled to one of the input ports causes responsive excitation at each output terminal in a manner to establish a phase and amplitude distribution across the m output terminals that is associated with the excited input port comprising:

a power divider arranged to couple each of said n input ports to at least two non-planar output ports; and

a matrix having input ports on at least two decks each coupled to one of said power divider output ports and output ports coupled to said m output terminals, each deck having sections thereof which include conductors on at least two levels with crossing conductors located at different levels and wherein transitions between levels are accomplished through non-contacting interlevel elements positioned in an electromagnetic coupling relationship.



4,424,501

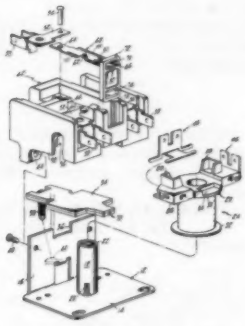
ELECTROMAGNETIC CONTACTOR HAVING IMPROVED CONTACT STRUCTURE

Ronald W. Goodrich, Logansport, Ind., assignor to Essex Group, Inc., Fort Wayne, Ind.

Continuation-in-part of Ser. No. 371,107, Apr. 19, 1982. This application May 6, 1982, Ser. No. 375,598

Int. Cl.³ H01H *3/60, 51/08*

U.S. Cl. 335—193 **1 Claim**



1. An electromagnetic contactor comprising: a terminal and contact block of insulating material having a slot-like guide opening therethrough; a contact actuator of insulating material slidably received in said guide opening for linear reciprocation in a path determined by said guide opening; said actuator having an aperture therein defining opposing parallel abutments normal to said path; a contact leaf spring mounted in cantilever fashion on said block with the free end of said leaf spring projecting into said aperture between said abutments; said leaf spring having upstanding stiffening side flanges along the sides thereof extending along a major length of said leaf spring; the free end portion of said leaf spring being longitudinally slotted into three tongues; the outer tongues lying substantially in the major plane of said leaf spring and the center tongue being bent at an obtuse angle from the major plan of said leaf spring; said center tongue being in resilient engagement with one of said abutments and biasing said outer tongues into engagement with the other of said abutments; a movable contact carried by said leaf spring intermediate the ends thereof; a fixed contact on said block engageable by said movable contact; and an electromagnetic operator for moving said actuator along said path from an at-rest position to an actuated position for closing said contact; said movable contact engag-

ing said fixed contact before movement of said actuator to its actuated position thereby flexing said center tongue toward said outer tongues for damping contact bounce.

4,424,502

TRANSFORMER WITH A CONTROLLED FLOW OF COOLING LIQUID

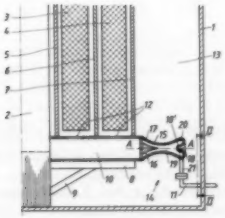
Kenneth Kullinger, Västeras, and Mats Mattsson, Ludvika, both of Sweden, assignors to ASEA Aktiebolag, Västeras, Sweden

Filed Nov. 1, 1982, Ser. No. 438,119

Claims priority, application Sweden, Dec. 17, 1981, 8107579

Int. Cl.³ H01F *27/10*

U.S. Cl. 336—57 **4 Claims**



1. Transformer with a controlled flow of cooling liquid, comprising a transformer tank (**1**) and an iron core arranged therein with yokes and legs (**2**) and with windings arranged thereon, a pressure chamber (**10**) arranged at a lower yoke, directing means for directing a plurality of cooling liquid flows, emanating from the pressure chamber, to flow vertically along the windings in order thereafter to be collected in said transformer tank, said transformer tank being connected to at least one cooling circuit which comprises an outlet conduit connected to the transformer tank, a cooler arranged outside the transformer tank, a circulating pump, and at least one supply conduit (**11**) connected between the output side of said circulating pump and said pressure chamber, said pressure chamber (**10**) being hydraulically connected to a collecting space (**13**) for cooling liquid, located within said transformer tank but outside the pressure chamber, via at least one hydraulic connecting member, the hydraulic resistance of said connecting member being smaller for a flow directed from the collecting space to the pressure chamber than for a flow in the opposite direction, characterised in that said hydraulic connecting member (**14**) is substantially constituted by a hollow body (**15**) which is internally defined by a surface of revolution and which has a first and a second end portion, said first end portion being connected to said pressure chamber, said second end portion comprising a first channel (**18**) which is coaxially oriented in relation to the axis (A—A) of the surface of revolution and which connects the interior of said hollow body with said collecting space (**13**), said first channel (**18**) being surrounded by a channel wall having a radially outwardly facing surface, which defines radially inwards an annular portion (**20**) of the space (**19**) surrounded by said surface of revolution, said annular portion (**20**) being connected at its outer periphery to at least one second channel (**21**) which is passed through a substantially circular-cylindrical, radially outer wall portion defining said annular space portion (**20**), said at least one second channel (**21**) being substantially tangentially directed in relation to said circular-cylindrical wall portion, the free end of said at least one second channel (**21**) being connected to said at least one supply conduit (**11**).

4,424,503

THREE-PHASE AND THREE-LEG CORE OF CORE-TYPE TRANSFORMER

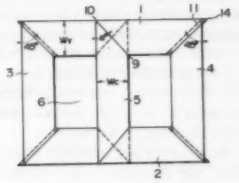
Yoshitake Kashima, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 16, 1981, Ser. No. 311,973

Claims priority, application Japan, Oct. 22, 1980, 55-148717

Int. Cl.³ H01F *27/26*

U.S. Cl. 336—60 **5 Claims**



1. A three-phase and three-leg core of a core-type transformer comprising three main legs spaced in parallel each of which is formed of a plurality of steel sheets stacked to form a substantially circular cross section, and upper and lower yokes each formed of a plurality of steel sheets stacked to form a substantially circular cross section for magnetically connecting said main legs, the steel sheets forming each of said main legs being diagonally cut at opposite longitudinal ends thereof and the steel sheets forming each of said yokes being cut in two different fashions, one fashion of which is of diagonal cuts disposed at opposite longitudinal ends thereof to provide steel sheets of the trapezoidal shape and the other fashion being of a diagonal cut disposed at one of opposite longitudinal ends thereof and a right angle cut disposed at the other longitudinal end thereof to provide steel sheets of the trapezoidal shape,

each of the steel sheets in a layer forming each of said yokes being provided with a width greater than a width of each of the steel sheets in the same layer forming each of said main legs;

the longitudinal opposite ends of each of the steel sheets for forming the center main leg of said three main legs interposed between the two outer main legs being cut diagonally at an angle less than 45 degrees and joined diagonally and at a right angle to the steel sheets for forming said upper and lower yokes substantially through the entire surfaces; and

the longitudinal ends of each of the steel sheets for forming the two outer main legs disposed on opposite sides of the center main leg being cut diagonally at 45 degrees and joined diagonally to the steel sheets for forming the upper and lower yokes in an area in which each of the yoke steel sheets is cut diagonally.

4,424,504

FERRITE CORE

Tadashi Mitsui, Tokyo, and Hiraku Imaizumi, Shisuimachi, both of Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Jun. 15, 1982, Ser. No. 388,636

Claims priority, application Japan, Jun. 19, 1981, 56-89428[U]; Jul. 1, 1981, 56-98866[U]

Int. Cl.³ H01F *27/24*

U.S. Cl. 336—83 **7 Claims**

1. A ferrite core half for use in a power supply circuit comprising:

(a) a circular center boss (**6**),

(b) a pair of outer walls (**7, 8**) positioned at both the sides of said boss for mounting a coil,

(c) a pair of base plates (**9, 10**) coupling a portion of said boss with said outer walls, said base plates extending from the periphery of said boss to the side surface of said walls wherein said boss, walls and base plates form an E-shaped

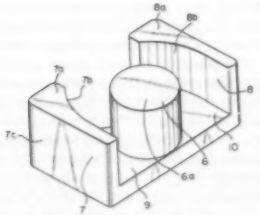
structure and wherein the end portion of said boss, end portions of said walls and said base plates are all aligned in a single plane,

(d) each of the outer walls is substantially rectangular with an external linear wall and an inner curved wall which is substantially coaxial with said circular boss and the width of said external linear wall is larger than the diameter ($2a_1$) of the circular boss,

(e) each of said base plates being substantially in an arc shape, and the portions of said boss which are coupled to said base plates being less than the whole of the periphery of said boss such that a space is formed between said base plates along the periphery of said boss,

(f) the area (S_6, S_7) coupling said base plates with said outer walls being equal to or larger than the half of the cross-sectional area ($S_1=\pi a_1^2$) of said boss,

(g) the area (S_2, S_3) coupling said boss with the base plates being substantially the same as half of the cross-sectional area ($S_1=\pi a_1^2$) of said boss,



(h) the area (S_4, S_5) of the cross-section of each of said outer walls being equal to or larger than the half of the cross-sectional area (πa_1^2) of said boss,

(i) the core half being symmetrical with regard to a first plane including a center axis of said boss and being parallel with the external linear walls of said outer walls,

(j) a concaved opening (R) being provided between said base plates in a first side of the core half with regard to a reference plane which includes a center axis of said boss and is perpendicular to said first plane, and said opening (R) extending to the surface of the center boss,

(k) the length (B_1) between said reference plane to the end of the first side of the core half in the first side which includes said concaved opening being longer than the length (B_2) between said reference plane to the end of a second side of the core half, and

(l) said length (B_2) being the same as the radius a_1 of the center boss.

4,424,505

ELECTRIC COIL ASSEMBLY

Kenji Yatsushiro, Chicago, and George F. Kuchuris, Bloomingdale, both of Ill., assignors to The Singer Company, Stamford, Conn.

Filed Mar. 10, 1983, Ser. No. 473,937
Int. Cl.³ H01F *15/10, 27/30*
U.S. Cl. 336—90 **11 Claims**

1. An electrical coil assembly comprising:

a bobbin having a large flange at one end and a small flange at the other end;

two terminals fixed on the small flange;

magnet wire connected to one terminal and wound on the bobbin and connected to the other terminal;

an insulated lead wire connected to each terminal;

an opening in the large flange radially beyond the coiled magnet wire, both of the insulated lead wires passing through said opening; and

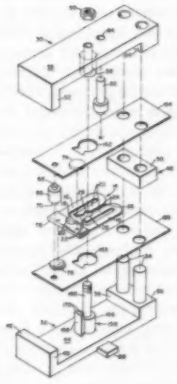
a cover having an annular portion abutting the small flange and a cylindrical portion which fits over the rim of the large flange.

4,424,506

SNAP-ACTING MECHANISMS

Lyndon W. Burch, Boston, Mass., assignor to B/K Patent Development, Inc., Highland Park, Ill.

Continuation-in-part of Ser. No. 304,866, Sep. 23, 1981. This application Oct. 28, 1981, Ser. No. 315,624
Int. Cl.³ H01H *37/54*
U.S. Cl. 337—365 **25 Claims**



1. In a snap acting mechanism having a generally planar blade of resilient material formed with a pair of outer legs, one end of each outer leg being connected to one end of the other, and a pair of inner legs between the outer legs, each inner leg having a free end and an end connected to the other end of an outer leg, the combination with said blade of

a base comprising a pair of members secured together and respectively having base portions in spaced facing relationship, the base having positioning means extending from one of said base portions to the other, the positioning means locating and clamping said free ends in a predetermined position between said base portions and including spreader means for spreading said free ends apart to stress the blade into a condition having two stable positions and a center position therebetween, and

stop means on the base in position to engage the blade in a position between one of said stable positions and said center position.

4,424,507

THIN FILM THERMISTOR

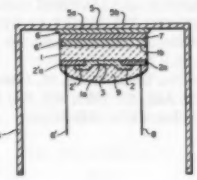
Takeshi Nagai; Kazushi Yamamoto, and Ikuo Kobayashi, all of Nara, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 30, 1982, Ser. No. 363,498

Claims priority, application Japan, Apr. 10, 1981, 56/54892; Dec. 15, 1981, 56/202731

Int. Cl.³ H01C 7/04

U.S. Cl. 338—22 R 13 Claims



1. A thin film thermistor comprising:
an insulating substrate having two surfaces;
one pair of electroconductive electrode films arranged on one surface of said insulating substrate in a desired pattern, the electrodes being electrically insulated from each other;
a thermally sensitive resistive film arranged on said one surface of said insulating substrate and said at least one pair of electroconductive electrode films, said film arranged so as to leave part of said electrodes exposed for making external connections thereto;
one pair of external leads connected to said exposed electrode portions; and
a metal housing in a cylindrical form having a bore extending along the longitudinal axis thereof and having both a closed end and an open end, wherein another surface of said insulating substrate is secured to the inner surface of said closed end by a brazing arrangement of an Ag-Cu alloy layer, one of a Ti and a Zr foil layer, and another Ag-Cu alloy layer, said layers arranged between said another surface of said insulating substrate and said inner surface of said closed end.

4,424,508

MOISTURE SENSITIVE ELEMENT

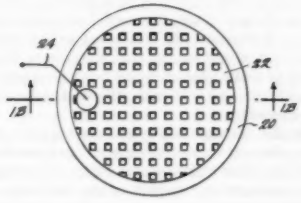
Mituo Harata, Kawasaki; Masaki Katsura, Yokosuka; Shigeki Uno, Kawasaki; Hideaki Hiraki, Kawasaki, and Masayuki Shiratori, Kawasaki, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

Filed Aug. 10, 1981, Ser. No. 291,761

Claims priority, application Japan, Aug. 8, 1980, 55-108242; Aug. 15, 1980, 55-111608; Aug. 15, 1980, 55-111613; Aug. 15, 1980, 55-111615; Aug. 15, 1980, 55-111619

Int. Cl.³ H01L 7/00

U.S. Cl. 338—35 17 Claims



1. A moisture sensitive element comprising:
a porous metal oxide ceramic; and
at least one of phosphorus and sulfur in at least one of a pure and oxide form, said at least one of phosphorus and sulfur being supported by said porous metal oxide ceramic.

4,424,509

SENSOR ARRANGEMENT TRIGGERABLE BY DECELERATION FORCES

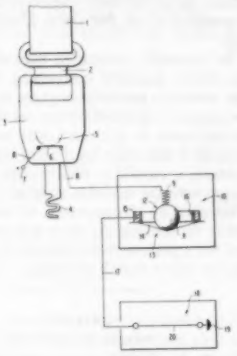
Rudolf Andres, Sindelfingen, and Holger Seel, Aidlingen, both of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Jun. 1, 1981, Ser. No. 269,508

Claims priority, application Fed. Rep. of Germany, May 30, 1980, 3020505

Int. Cl.³ B60Q 1/00

U.S. Cl. 340—52 E 26 Claims



1. A sensor means adapted to be triggered by deceleration forces and forming a component of a vehicle safety belt system, the sensor means including a mass deflectible from an initial position to a fully deflected position upon exceeding a predetermined amount of deceleration force and an indicator means for providing an indication as to whether the belt of the safety belt system was deployed during an occurrence of a predetermined rate of deceleration characterized in that means are provided for positioning the mass so that a deflection of the mass to the fully deflected position is attained only beginning with a deceleration force of a predetermined amount, and means are provided for controlling the mass in one of said initial position and said deflected position.

4,424,510

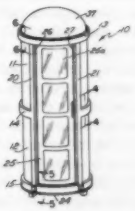
FIRE ALARM SYSTEM

Lawrence L. Hartshorn, 214 Silver Spring St., Providence, R.I. 02904

Filed Oct. 27, 1980, Ser. No. 201,133

Int. Cl.³ G08B 25/00

U.S. Cl. 340—304 4 Claims



1. In a fire alarm system,

a fire alarm device for calling assistance comprising a fire alarm actuating switch assembly and a cover therefore;

a mechanism for ensuring the presence of the one who has operated the alarm device at such device for a predetermined length of time, said mechanism comprising an enclosure in which the alarm switch assembly and its cover are mounted, said enclosure having an opening for the entry and exit of said operator of the fire alarm device, the alarm switch assembly being so disposed in the enclosure so that the operator must be within the enclosure before he can operate the alarm switch assembly;

said alarm switch assembly having a movable member adapted to be engaged by the user;

a door for selectively closing said opening, means responsive to at least the partial open position of the door for preventing operation of the fire alarm device unless the door is closed;

means for normally preventing manual movement of the alarm switch assembly comprising an electric solenoid whose armature normally engages the movable member of the switch to prevent movement thereof;

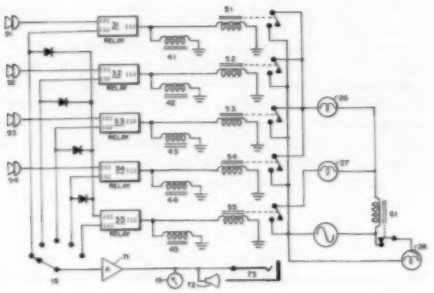
means responsive to a closed door and actuated by the movement of the cover for the fire alarm switch assembly for closing a circuit to remove the engagement of the armature with the movable member of the switch;

means actuated by the operation of the fire alarm switch assembly for locking the door and maintaining the door locked for a predetermined length of time after operation of the fire alarm switch assembly.

4,424,511
NOISE MONITOR

Fred L. Alberts, Jr., 3500 Hardy St., Apt. 56, Hattiesburg, Miss. 39401

Filed Oct. 30, 1980, Ser. No. 202,353
Int. Cl.³ G08B *23/00*; H04Q *1/00*
U.S. Cl. 73—646 **9 Claims**



1. A noise level monitoring and indicating system, comprising:

(a) a plurality of voice responsive channels, each including a microphone, an audio amplifier, and switch means for completing an electrical circuit when the amplitude of the output of said audio amplifier exceeds a predetermined value; and an indicator means for each of said plurality of voice responsive channels, said indicator means including a display counter driven by said electrical circuit for providing an indication of the number of times said electrical circuit has been completed in the associated one of said plurality of voice responsive channels;

(b) an area voice responsive channel, including an audio amplifier and switch means for completing an electrical circuit when the amplitude of the output of said last mentioned audio amplifier exceeds a predetermined value;

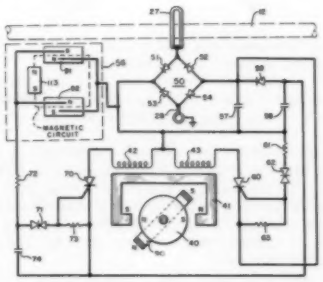
(c) means coupling an output of each of said audio amplifiers from said plurality of voice responsive channels to the input of said area voice responsive channel audio amplifier; and

an area indicator means responsive to said area voice responsive channel, said area indicating means including a display counter driven by said area responsive channel electrical circuit for providing an indication of the number of times said area voice responsive channel electrical circuit has been completed.

4,424,512
FAULT INDICATOR HAVING INCREASED SENSITIVITY TO FAULT CURRENTS

Edmund O. Schweitzer, Jr., 1002 Dundee Rd., Northbrook, Ill. 60118

Continuation of Ser. No. 190,584, Sep. 25, 1980, abandoned. This application Aug. 12, 1982, Ser. No. 407,641
Int. Cl.³ G08B *21/00*
U.S. Cl. 340—664 **14 Claims**



1. A fault indicator responsive to the occurrence of a fault current at or above a predetermined minimum threshold level in an alternating current conductor, comprising, in combination:

a housing including means for attaching the housing to the conductor;

indicator means within said housing having a reset-indicating state and a fault-indicating state;

electric circuit means within said housing for conditioning said indicator means to said fault-indicating state in response to a contact closure;

first and second magnetic reed switch elements arranged in parallel-spaced relationship to respective parallel-spaced planes each generally perpendicular to the axis of said conductor, said switch elements being in magnetic communication with said conductor and each including a pair of contacts actuated only upon the occurrence of a current in said conductor in excess of said predetermined threshold level;

said magnetic reed switch elements each including an elongated housing having magnetically and electrically conductive wire leads extending from the ends thereof;

the lead on one end of said first switch elements being electrically and magnetically connected to the lead on the adjacent end of said second switch elements, the remaining leads of said switch elements being arranged in parallel-spaced relationship to each other and to the axis of said switch elements;

a magnetically non-conductive and electrically conductive bridging element connected between said parallel-spaced switch leads, said circuit means being connected to said bridging element and to said connected leads whereby said indicator means are conditioned to a fault indicating state upon closure of either of said contacts of said switch elements; and

permanent magnet means mounted with the opposing poles thereof in communication with respective ones of said

parallel spaced leads for establishing a magnetic bias circuit which serially includes said contacts of said magnetic switch elements, whereby said switch elements actuate upon the occurrence of a fault current at or above said threshold level during respective half cycles of the alternating current in the conductor, and return to a non-actuated state following termination of the fault current.

4,424,513

METHOD AND APPARATUS FOR CONTROLLING A DYNAMIC OR STATIC TYPE DIGITAL DISPLAY DEVICE

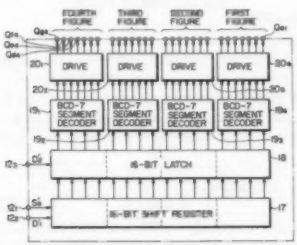
Itsuro Hatao, and Susumu Kobayashi, both of Yokohama, Japan, assignors to Victor Company of Japan, Limited, Yokohama, Japan

Filed Dec. 15, 1980, Ser. No. 216,809

Claims priority, application Japan, Dec. 17, 1979, 54-174546[U]

Int. Cl.³ G09G *3/04*

U.S. Cl. 340—805 **7 Claims**



1. An apparatus for producing selectively one of a dynamic drive signal and a static drive signal in response to a selection signal so that a digital display device having a plurality of multi-segment display units can be driven selectively in either (1) a dynamic drive mode, in which said plurality of multi-segment display units are driven sequentially, or (2) a static drive mode, in which said plurality of multi-segment display units are driven simultaneously, said circuit arrangement comprising:

(a) first memory means for storing data to be displayed;

(b) second memory means for storing operational instructions for producing said dynamic drive signal on the basis of data read out from said first memory means;

(c) third memory means for storing operational instructions for producing said static drive signal on the basis of data read out from said first memory means;

(d) a manually operable switch and an associated circuit for producing said selection signal;

(e) control means for reading out data from said first memory means in response to said selection signal, said control means processing said data in accordance with said operational instructions read out from said second memory means for producing said dynamic drive signal including a plurality of parallel data signals each having information for energizing a segment of each of said plurality of multi-segment display units when said selection signal assumes a predetermined level, said dynamic drive signal also including parallel timing signals with which each of said multi-segment display units is periodically energized; said control means processing said data in accordance with said operational instructions read out from said third memory means for producing said static drive signal including at least one serial data signal having information of a plurality of figures to be displayed by said plurality of multi-segment display units when said selection signal assumes another predetermined level, said static drive signal also including a timing signal for decoding said serial data signal so that each segment of each of said multi-segment display units is selectively energized in accordance with said serial data signal; and

(f) a plurality of output terminals from which said dynamic drive signal and said static drive signal are selectively derived in such a manner that some of said output terminals are used in common for both signals of said dynamic drive signal and signals of said static drive signal.

4,424,514

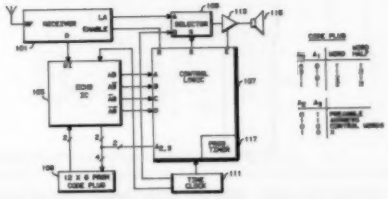
DECODER FOR TRANSMITTED MESSAGE ACTIVATION CODE

Robert D. Fennell, Coral Springs; David F. Bailey, Plantation, and Charles J. Ganucheau, Jr., North Lauderdale, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 13, 1981, Ser. No. 310,592

Int. Cl.³ H04Q *9/00, 7/00;* H04B *7/26;* H04M *11/02*

U.S. Cl. 340—825.52 **17 Claims**



1. A decoder for a receiver in a plural population of receivers, each said receiver having a predetermined alert sequence, for receiving transmitted coded information signals, including activation code signals, comprising:

means responsive to received coded signals designating the address of at least one said receiver in said plural population of receivers;

means responsive to the detection and decoding of an address of said addressed receiver for establishing a ready state of said addressed receiver to receive additional information signals; and

means responsive to a first activation code signal for activating said addressed receiver to begin said predetermined alert sequence.

4,424,515

ASSEMBLY FOR MOUNTING ANTENNA ON VEHICLE BODY

Erhard Arbter, Dauchingen, and Ernst Steinhauer, Esslingen, both of Fed. Rep. of Germany, assignors to Richard Hirschmann Radiotechnisches Werk, Esslingen am Neckar, Fed. Rep. of Germany

Filed Jul. 27, 1981, Ser. No. 286,895

Claims priority, application Fed. Rep. of Germany, Aug. 2, 1980, 3029413

Int. Cl.³ H01Q *1/32*

U.S. Cl. 343—715 **8 Claims**

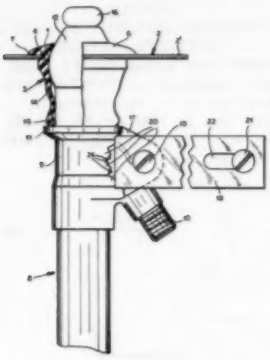
1. An assembly for fastening a retractable antenna to the body of an automotive vehicle, comprising:

an antenna casing in the form of a tube;

an electrically conductive rod slidably inserted and retractable in said casing, said casing being provided with means for facilitating the connection of an electrically conductive cable to said rod; and

an elastic mounting sleeve provided at one end with an outwardly facing circumferential groove for receiving, flanking and gripping an edge of a preformed hole in said body upon an insertion of said sleeve through said hole during a mounting operation, said sleeve having a substantially spherical inner surface at said one end, said casing having at one end a distended section with a substantially spherical outer surface engaging said inner surface in a

pressure fit and hugging said inner surface over a substantial part of the area thereof upon an insertion of said casing into said sleeve during said mounting operation, said spherical surfaces coacting to facilitate an inclination, within limited angles, of said casing and said rod with respect to a surface of said body in a region about said hole, said casing having a substantially cylindrical outer surface and an annular shoulder projecting therefrom and



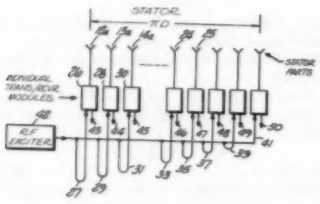
spaced from said spherical outer surface, said sleeve having in an unstressed state a substantially cylindrical wall formed with bellows-like undulations and at an end of said sleeve opposite said groove with an annular bead for gripping said cylindrical outer surface and for engaging said shoulder regardless of the angle of inclination of said casing with respect to a surface of said body in a region about said hole.

4,424,516

AROUND-THE-MAST ROTARY COUPLER WITH INDIVIDUAL POWER MODULE EXCITATION

Bradford E. Kruger, and John C. Parr, both of Woodland Hills, Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Dec. 24, 1981, Ser. No. 334,230
Int. Cl.³ H01Q *3/02*
U.S. Cl. 343—763 **8 Claims**



1. A rotary, annular, radio-frequency, coupler system having rotor and stator members each including a distributed series of spaced conductive webs extending radially between radially spaced inner and outer concentric conductive cylindrical surfaces to divide said rotor and stator members into a series of circumferentially contiguous cells, said rotor and stator members each being open and facing each other at an annular planar interface, said rotor and stator being arranged concentrically, having said inner cylindrical surfaces of each of substantially the same diameter and said outer surfaces of each of the same diameter, thereby forming an annular interface within said planar interface for transfer of radio-frequency energy between said rotor and said stator, and comprising:

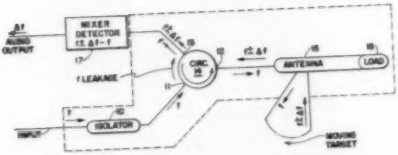
first means including a plurality of discrete transmit/receive modules each of which is connected discretely to a corresponding one of said stator cells, said first means including means for feeding said modules in parallel during a transmit mode; and second means within each module of said first means for receiving signal energy in each corresponding cell during a receiving mode, said second means including individual duplexing means associated wih each of said modules for separating the operation of said modules between transmit and receive modes.

4,424,517

INTEGRATED DIELECTRIC WAVEGUIDE RADAR FRONT END DEVICE

Richard A. Stern, Allenwood, and Richard W. Babbitt, Fairhaven, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 31, 1983, Ser. No. 499,735
Int. Cl.³ H01Q *13/10*
U.S. Cl. 343—771 **8 Claims**



1. A monolithic dielectric waveguide radar front end device comprising;

a dielectric transmission line having an input section and an antenna radiating section;

a non-reciprocal prism shaped ferrite circulator integrated in said transmission line and interposed between said input section and said antenna radiating section, said circulator having opposing base surfaces and three lateral rectangular faces providing three ports, said input section being connected to one face, said antenna section being connected to a second face; and

a dielectric waveguide output section connected to the third face for coupling energy out of said circulator.

4,424,518

COLUMN DOT FORMATION IN AN INK JET SYSTEM PRINTER OF THE CHARGE AMPLITUDE CONTROLLING TYPE

Hitoshi Suzuki, Nara; Fumio Togawa, Yamatokoriyama, and Mitsuhiro Hakaridani, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Apr. 23, 1981, Ser. No. 256,917
Claims priority, application Japan, Apr. 24, 1980, 55-54920
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—75 **7 Claims**

1. A method for forming a dot column with an ink jet system printer of the charge amplitude controlling type wherein charged ink droplets are deflected as they pass through a constant high voltage deflection electric field in accordance with the charge amount carried thereon, and the deflected ink droplets are deposited on a recording medium to print a desired symbol in a dot matrix fashion, said column dot formation method comprising at least:

a first step of applying a first charge voltage to a first ink droplet so that said first ink droplet is directed to a first dot position in said column on said recording medium;

a second step of applying a second charge voltage to a second ink droplet next following said first ink droplet so that said second ink droplet is directed to a second dot

position in said column on said recording medium, said second dot position being separated from said first dot position by at least a first preselected distance in a first direction; and

a third step of applying a third charge voltage to a third ink droplet next following said second ink droplet so that said

third ink droplet is directed to a third dot position in said column on said recording medium, said third dot position being separated from said second dot position by at least a second preselected distance in a second direction substantially opposite to said first direction and separated from said first dot position by at least a third preselected distance.

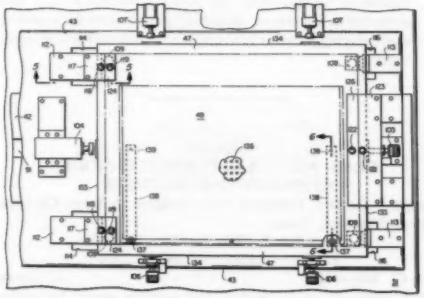
4,424,519
SYSTEM AND METHOD FOR PRODUCING ARTWORK FOR PRINTED CIRCUIT BOARDS

Don B. Neumann, Laguna Beach; Lyle K. Norton, Santa Ana, and Eric V. Olson, Long Beach, all of Calif., assignors to American Hoechst Corporation, Somerville, N.J.

Division of Ser. No. 42,133, May 24, 1979. This application Mar. 19, 1981, Ser. No. 245,694

Int. Cl.³ G01D *9/42;* **H04N** *1/22;* **G03B** *41/00*

U.S. Cl. 346—108 **5 Claims**



1. In a system for forming an image of printed circuit artwork on a generally planar output medium: laser means for providing a beam of coherent radiation, means for modulating the beam in accordance with the image to be formed, means for deflecting the beam to effect scanning of the output medium, means for focusing the scanning beam at an image plane, a carriage movable in a fixed plane generally parallel to the image plane, a platen mounted on the carriage and having a relatively large planar surface for holding the output medium, means for moving the platen between advanced and retracted positions relative to the carriage and the image plane, and stop means carried by the carriage for abutting engagement with the planar surface of the platen to position the output medium carried by the platen in the image plane when the platen is in the advanced position.

4,424,520
INK JET PRINTING APPARATUS

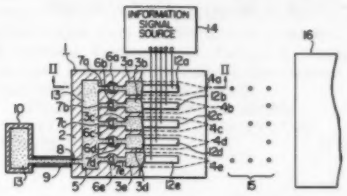
Yasumasa Matsuda, Hitachi; Syoji Sagae, Hitachiota, and Masatoshi Kasahara, Hitachi, all of Japan, assignors to Hitachi, Ltd. and Hitachi Koki Co., Ltd., both of Tokyo, Japan

Filed Oct. 15, 1981, Ser. No. 311,887

Claims priority, application Japan, Oct. 15, 1980, 55-142991; Jan. 7, 1981, 56-420

Int. Cl.³ G01D *15/18*

U.S. Cl. 346—140 R **7 Claims**



1. An ink jet printing apparatus comprising:

a nozzle head including at least one orifice means for ejecting ink particles, first ink chamber means having one end thereof communicated with said orifice means and the other end thereof communicated with an ink supply aperture to define a pressure chamber and first piezoelectric transducing means associated with said first ink chamber means for changing an internal volume of said first ink chamber means when actuated to eject the ink particles from said orifice means;

means for selectively applying a set of main and sub-electrical signal pulses to said first piezoelectric transducing means to actuate the same, said electrical pulse signal applying means including first means for generating said main electrical signal pulse for inducing a rise of a pressure wave in said first ink chamber means and second means for generating said sub-electrical signal pulse for suppressing the pulsation of pressure in said first ink chamber means, said sub-electrical signal pulse having a phase lagged by a predetermined time interval from said main electrical pulse signal;

second ink chamber means arranged between said first ink chamber means and said ink supply aperture and communicating therewith, and second piezoelectric transducing means associated with said second ink chamber means for changing an internal volume of said second chamber means when actuated; and

said set of main and sub-electrical signal pulses further including a pre-electrical signal pulse to be applied to said second piezoelectric transducing means to actuate the same, and said electrical signal applying means includes third means for generating said pre-electrical signal a predetermined time interval prior to said main electrical signal pulse.

4,424,521
INK JET APPARATUS AND RESERVOIR

Arthur M. Lewis, Ridgefield, Conn., and Morris W. Leen, Yorktown Heights, N.Y., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Jan. 4, 1982, Ser. No. 336,602

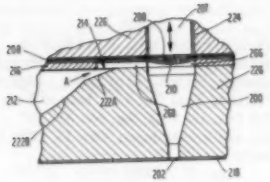
Int. Cl.³ G01D *15/18*

U.S. Cl. 346—140 R **16 Claims**

1. An ink jet apparatus comprising:

at least one ink jet chamber including an ink droplet ejection orifice and an inlet; and

a relatively shallow reservoir including wall portions at the outer extremities of the reservoir tapering to an acute



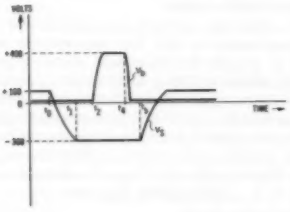
angle, said inlet of said ink jet communicating with said reservoir in the region of said acute angle.

4,424,522

CAPACITIVE ELECTROSTATIC STYLUS WRITING WITH COUNTER ELECTRODES

William A. Lloyd, Los Altos; Keith E. McFarland, Woodside, and Kenneth E. Smith, San Jose, all of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 14, 1980, Ser. No. 206,786
Int. Cl.³ G01D *15/06*
U.S. Cl. 346—154 **5 Claims**



1. In an electrostatic stylus printer having at least one nib and at least one counter electrode aligned on opposite sides of a dielectric coated recording medium with said nib being adjacent to said dielectric coating, and means for maintaining said counter electrode in conforming contact with said recording medium such that there is relatively little contact impedance between said counter electrode and said recording medium; the improvement comprising

means for applying a first writing voltage pulse to said nib and a second writing voltage pulse to said counter electrode in timed sequence and for predetermined time periods;

said sequence being selected to enable said nib to substantially stabilize at a predetermined writing voltage level prior to the application of said second writing voltage pulse, whereby said dielectric coating is capacitively charged to approximately a predetermined image voltage level in response to the application of said second writing voltage pulse, and

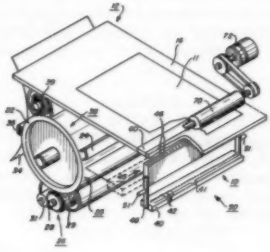
said time periods being selected so that said second writing voltage pulse terminates no later than said first writing voltage pulse, thereby preventing premature discharge of said dielectric coating.

4,424,523

READ/WRITE BAR FOR MULTI-MODE REPRODUCTION MACHINE

Christopher Snelling, Penfield, and Martin E. Banton, Fairport, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jul. 2, 1982, Ser. No. 394,601
Int. Cl.³ G01D *15/06;* **H04N** *1/04*
U.S. Cl. 346—160 **19 Claims**



1. Combined document reading, illuminating, and writing means for either scanning a document to provide image signals representative of the document image or scanning an imaging member to expose said imaging member in accordance with an image signal input to write images represented by said image signal input on said imaging member, comprising in combination:

(a) a substrate;

(b) plural light emitting and light sensing scanning elements on said substrate, said scanning elements being arranged on said substrate in at least one linear array capable of either scanning a document or scanning said imaging member; and

(c) control means for operating first ones of said elements as light emitters for illuminating a line-like portion of said document and the remaining second ones of said elements as image sensors for scanning said document illuminated portion and converting the document image to image signals or for operating said first and second ones of said elements as selectively actuable light emitters for exposing said imaging member in accordance with said image signal input.

4,424,524

READ/WRITE BAR FOR MULTI-MODE REPRODUCTION MACHINE

Joseph J. Daniele, Pittsford, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jul. 2, 1982, Ser. No. 394,758
Int. Cl.³ G01D *15/06;* **H04N** *1/04*
U.S. Cl. 346—160 **13 Claims**

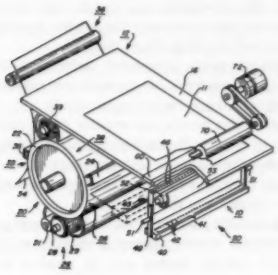
1. Combined image reading and writing means for either scanning a document original to provide image signals representative of the document image or scanning an imaging member and exposing said imaging member in accordance with an image signal input to write images represented by said image signal input on said imaging member comprising in combination:

(a) a substrate;

(b) plural combination light emitting and light sensing scanning elements on said substrate, said scanning elements being arranged on said substrate in at least one linear array capable of either scanning a document original or scanning said imaging member; and

(c) control means for operating said elements as either image

sensors for converting the image content of said document original to image signals or as selectively actuable light



emitters for exposing said imaging member in accordance with said image signal input.

4,424,525

HIGH ELECTRON MOBILITY SINGLE HETEROJUNCTION SEMICONDUCTOR DEVICES

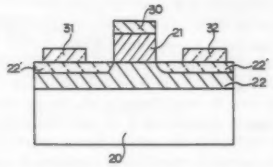
Takashi Mimura, Machida, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

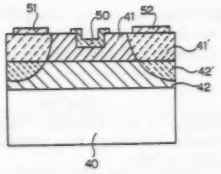
Filed Dec. 29, 1980, Ser. No. 220,968

Claims priority, application Japan, Dec. 29, 1979, 54-171026; Dec. 29, 1979, 54-171027; Jun. 17, 1980, 55-82035; Jun. 27, 1980, 55-87527

Int. Cl.³ H01L *29/78*

U.S. Cl. 357—23 17 Claims





1. An active semiconductor device with high electron mobility, comprising

a source layer of a semiconductor doped with donor impurities,

a channel layer of a semiconductor having a larger electron affinity than the semiconductor of the source layer and forming a heterojunction with said source layer, wherein a channel is formed in said channel layer along said heterojunction,

at least one control terminal formed on a selected one of said source and channel layers over said portion of said heterojunction,

a pair of output terminals selectively formed on said source and channel layers, on opposite sides of said at least one control terminal,

said source layer having sufficiently small thickness, at least under said at least one control terminal, so as to be entirely depleted of majority carriers under said at least one control electrode,

wherein said output terminals are electrically connected, at least under said at least one control terminal, only by an accumulation of electrons with high mobility in said channel in said channel layer, depending on a control voltage applied to said control terminal.

4,424,526

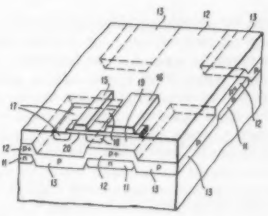
STRUCTURE FOR COLLECTION OF IONIZATION-INDUCED EXCESS MINORITY CARRIERS IN A SEMICONDUCTOR SUBSTRATE AND METHOD FOR THE FABRICATION THEREOF

Robert H. Dennard, Cortlandt, and Matthew R. Wordeman, Mohegan Lake, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 29, 1981, Ser. No. 268,506

Int. Cl.³ H01L *31/00, 29/92, 29/80, 27/02*

U.S. Cl. 357—29 9 Claims



1. In a semiconductor substrate wherein the improvement comprises a buried interconnected grid-like region of enhanced concentration of impurity type opposite to that of the semiconductive substrate for collecting excess minority carriers generated in the semiconductor substrate.

4,424,527

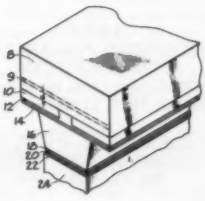
BONDING PAD METALLIZATION FOR SEMICONDUCTOR DEVICES

Srinivas T. Rao, South Brunswick, and Jeoffrey Mott, Franklin Lakes, both of N.J., assignors to Optical Information Systems, Inc., Elmsford, N.Y.

Filed Jul. 31, 1981, Ser. No. 288,857

Int. Cl.³ H01L *29/46, 23/48*

U.S. Cl. 357—71 15 Claims



1. A bonding pad metallization for semiconductor electronic devices comprising:

a first layer of gold having a thickness of 1.5 microns or greater deposited onto said semiconductor device;

a layer of nickel deposited onto said gold layer;

a second layer of gold deposited onto said nickel layer, with

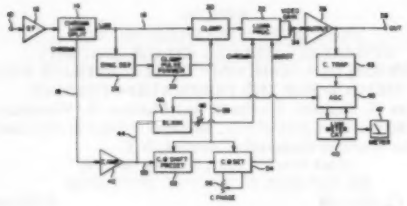
said layer of nickel and said second layer of gold both being relatively thin as compared to said first layer of gold.

4,424,528

VIDEO CIRCUIT

James A. Karlock, and Roger A. Marin, both of Portland, Oreg., assignors to Vidicraft, Inc., Portland, Oreg.

Filed Nov. 30, 1981, Ser. No. 326,804
Int. Cl.³ H04N 5/08
U.S. Cl. 358—39 **4 Claims**



1. A circuit for processing video information comprising:
an input circuit path for receiving a video input signal,
means for normally separating the luminance portion of the video input signal from synchronizing information, said means including means for maintaining the back porch of the video input signal at a predetermined voltage level,
said separating means further comprising unilaterally conducting means in shunt relation to the circuit path of said video input signal and normally biased for conducting at a voltage below said predetermined voltage level whereby synchronizing information is shunted through said unilaterally conducting means and substantially eliminated from luminance information at the input of said unilaterally conducting means,
and means for separately processing said luminance information from said synchronizing information and for then adjustably recombining the same,
said circuit further comprising means for switching current between the output and input of said unilaterally conducting means at predetermined times corresponding to predetermined portions of said video input signal for alternatively passing substantially the entire video input signal through said unilaterally conducting means by supplying additional current to the input thereof at said predetermined times so that said luminance information is then coupled through the circuit without separate processing, while at other times additional current is supplied at the output of said unilaterally conducting means to maintain substantially the same voltage level at the output of said unilaterally conducting means.

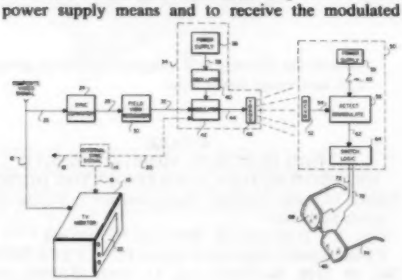
4,424,529

REMOTELY TRIGGERED PORTABLE STEREOSCOPIC VIEWER SYSTEM

John A. Roese, 6315 Camino Corto, San Diego, Calif. 92120, and A. Franklin Turner, 748 S. El Molino Ave., Pasadena, Calif. 91106

Continuation-in-part of Ser. No. 854,259, Nov. 23, 1977, Pat. No. 4,214,267. This application Mar. 3, 1980, Ser. No. 126,216
Int. Cl.³ H04N 9/54
U.S. Cl. 358—88 **18 Claims**

1. A stereoscopic viewer system for monitoring a synchronized left-right stereoscopic image pair, said system comprising:
transmission means connected to receive a synchronizing signal from left-right stereoscopic image pair production means, said transmission means including:
first power supply means connected to supply power,
carrier generator means connected to said power supply means to receive power therefrom and to generate a carrier signal,
modulator means connected to receive the carrier signal and said synchronizing signal, said modulator means generating as an output the carrier signal modulated by the synchronizing signal, and
transmitter means connected to receive the modulated signal output from the modulator means and to transmit same into the surrounding medium;
receiving means positioned remote from said transmission means to receive the modulated carrier signal and generate a switching signal, said receiving means having:
receiver means to receive the transmitted modulated carrier signal from the medium,
a rechargeable battery connected to supply power,
demodulator means connected to receive power from the power supply means and to receive the modulated



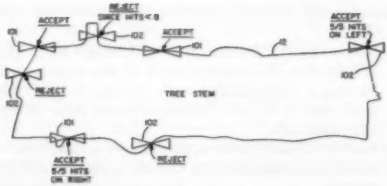
carrier signal from the receiving means to extract the synchronization signal therefrom,
switching logic to receive the synchronization signal and to generate a switching signal;
a pair of electro-optic shutter means each connected to said switching logic to receive said switching signals to selectively and in accordance with the synchronizing signal alternately operate each of said shutters between maximum and minimum optical transmission states;
eyeglass means in mechanical association with the electro-optic shutters for positioning each of said electro-optic shutters in the line-of-sight of one of the eyes of a user, said eyeglass means having said receiving means positioned therein; and
tray means sized to receive said glass means and support same, said tray means having means positioned and operable to recharge said rechargeable batteries.

4,424,530

LOG SURFACE DETERMINATION TECHNIQUE

Wilson E. Taylor, Palm Bay, Fla., assignor to Harris Corporation, Melbourne, Fla.

Filed Sep. 17, 1981, Ser. No. 303,138
Int. Cl.³ H04M 7/00
U.S. Cl. 358—96 **11 Claims**



1. A method of refining the image of an object so as to

remove discontinuities in the image of the perimeter of said object, comprising the steps of:

(a) providing a prescribed image filter which defines a delimited, predetermined-shape area of said image;

(b) applying those portions of the image of said object having characteristics capable of defining the perimeter of said object to said filter, and eliminating from said image those portions which said filter establishes as not lying on said perimeter or as constituting discontinuities in said perimeter; and

(c) selectively generating prescribed perimeter images at those portions of the image of said object which said filter has removed as constituting discontinuities in said perimeter;

whereby a complete image of the perimeter of said object absent discontinuities there is obtained.

4,424,531

INSPECTION DEVICE WITH TELEVISION CAMERA FOR NUCLEAR INSTALLATIONS

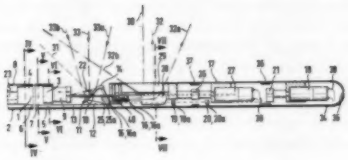
Claus Elter, Bad Durkheim; Hubert Handel, Rimbach; Hans-Juergen Heiland, Bruehl-Rohrhof; Hermann Schmitt, Langmeil, and Josef Schoening, Hambruecken, all of Fed. Rep. of Germany, assignors to Hochtemperatur-Reaktorbau GmbH., Cologne, Fed. Rep. of Germany

Filed May 20, 1981, Ser. No. 265,693

Claims priority, application Fed. Rep. of Germany, May 27, 1980, 3020093

Int. Cl.³ H04N 7/18

U.S. Cl. 358—100 **7 Claims**



1. An inspection device for insertion into nuclear reactor installations comprising:

a tubular housing;

a television camera mounted in said tubular housing and having a variable objective in an axial direction;

means for cooling said television camera;

a mirror movably arranged in front of the objective of said television camera;

an extension member supporting said mirror and extending from said tubular housing;

means for selective illumination of the area surrounding said tubular housing;

means for movement of said mirror relative to said television camera objective;

wherein said selective illumination means and said movement means are housed in tubular modules having the same tubular diameter as the tubular housing and adapted to connect directly and in an interchangeable sequence to said tubular housing and extension member.

4,424,532

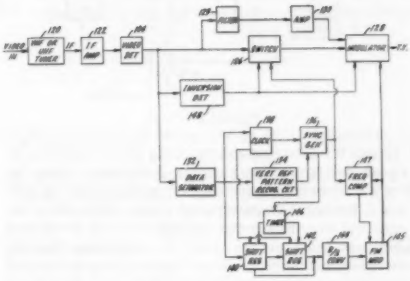
CODING AND DECODING SYSTEM FOR VIDEO AND AUDIO SIGNALS

Pieter den Toonder, Dordrecht; Pieter J. Fondse, Papendrecht; Johannes Seltenrijch, Gorichem; Cornelis A. de Jong, Zwijndrecht, and Tom de Koningh, Gouda, all of Netherlands, assignors to Oak Industries Inc., Rancho Bernardo, Calif.

Continuation of Ser. No. 368,854, Apr. 15, 1982, abandoned, which is a continuation of Ser. No. 149,707, May 14, 1980, Pat. No. 4,353,088, and a continuation-in-part of Ser. No. 965,940, Dec. 4, 1978. This application May 9, 1983, Ser. No. 492,706

Int. Cl.³ H04N 7/16

U.S. Cl. 358—120 **5 Claims**



1. Means for coding and decoding video and audio signals including:

(a) at the transmitter:

(1) means for deriving clock and internal timing signals from the video signal,

(2) means controlled by said internal timing signals for providing digital audio data during horizontal lines of the video signal,

(3) means for providing data representative of a decoder clock signal and a vertical reference signal,

(4) means for suppressing the video signal during horizontal and vertical blanking intervals,

(5) means for inserting the digital audio data and decoder clock signal data into suppressed horizontal blanking intervals,

(6) means for inserting vertical reference signal data into suppressed vertical blanking intervals,

(b) at the receiver:

(1) circuit means for separating the digital audio data, decoder clock signal data and vertical reference signal data from the video signal,

(2) means for independently generating a complete pattern of video signal horizontal and vertical sync pulses,

(3) a vertical reference signal data recognition circuit connected to said separating circuit and said sync pulse generator for detecting said vertical reference signal data and providing a gate signal to said sync pulse generator to start the pattern of horizontal and vertical sync pulses,

(4) a clock circuit connected to said separating circuit and to said sync pulse generator for detecting said clock signal data and providing clock signals to said sync pulse generator to control the timing of the pattern of horizontal and vertical sync pulses,

(5) means connected to said separating circuit for detecting said digital audio data and for providing a reconstituted audio signal,

(6) and means for combining the transmitted video signal, the reconstituted audio signal and the horizontal and vertical sync pulses from said sync pulse generator into television receiver usable video and audio signals.

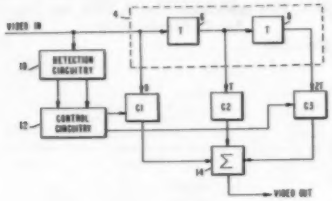
4,424,533
PHASE DISTORTION DETECTION CIRCUITRY FOR LOW COST AUTOMATIC EQUALIZER

Theodore S. Rzeszewski, Lombard, Ill., assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 282,039, Jul. 10, 1981, abandoned. This application Sep. 30, 1981, Ser. No. 306,967

Int. Cl.³ H04N *5/31*

U.S. Cl. 358—167 **23 Claims**



1. A system for detecting and reducing phase distortion in video signals due to multipath effects, comprising means for providing a horizontal synchronization pulse portion of said video signal having a predetermined phase relationship between high and low frequencies contained in said horizontal synchronization pulse portion prior to transission thereof, means for measuring the phase of said high frequencies relative to said low frequencies to thereby provide a correction signal indicative of said phase distortion, and means coupled to receive said correction signal and said video signal for reducing said phase distortion in said video signal in accordance with the correction signal.

4,424,534
ORIGINAL READER

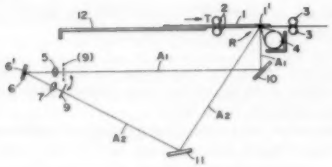
Hiromichi Nagane, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 29, 1981, Ser. No. 335,467

Claims priority, application Japan, Jan. 9, 1981, 56-1853; Jan. 9, 1981, 56-2271

Int. Cl.³ H04M *1/04*

U.S. Cl. 358—287 **26 Claims**



1. An original reader, comprising:

means for illuminating an original;

image reading means for receiving light and for generating an electric signal corresponding to the received light;

a fixed first projection optical system for projecting an image of the original illuminated by said illuminating means on said image reading means at a first magnification, said fixed first projection optical system having a first stationary lens;

a fixed second projection optical system for projecting an image of the original illuminated by said illuminating means on said image reading means at a second magnification through an optical path different from the optical path of said first projection optical system, said fixed second projection optical system having a second stationary lens; wherein the first and second stationary lenses are disposed such that the ratio of the optical path length between said image reading means and the first lens to the optical path length between the first lens and the original is different than the ratio of the optical path length between said image reading means and the second lens to the optical path length between the second lens and the original; and

means for selectively opening and closing the optical path of said first projection optical system and the optical path of said second projection optical system in accordance with the selected magnification.

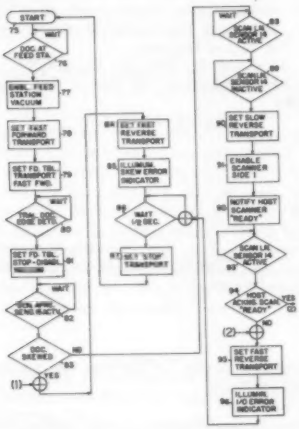
4,424,535
DOCUMENT VIDEO DIGITIZER

Michael Rothbart, Westlake Village; Robert D. Therien, Newbury Park; Thomas W. Oliver, Agoura; Thomas W. Roller, Thousand Oaks, and Robert D. Williams, Canoga Park, all of Calif., assignors to Terminal Data Corporation, Woodland Hills, Calif.

Filed Mar. 19, 1982, Ser. No. 360,021

Int. Cl.³ H04N *1/12*

U.S. Cl. 358—294 **10 Claims**



1. Document video-manipulative means, comprising;

(A) video means (**16**) to accept an image of a document (**2**),

(B) belt means (**10**) to selectively reversibly translate a document,

(C) servo means (**43**) to translate said belt means, mechanically connected thereto,

(D) microprocessor means (**40**) to control said servo means, electrically connected thereto, to;

(a) move said document forward at high speed,

(b) stop said document,

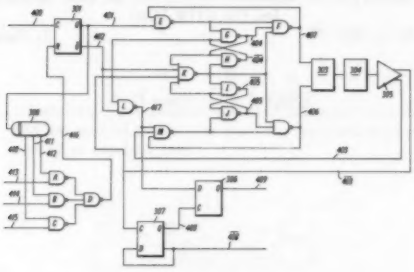
(c) move said document backward at low speed, and

(d) activate said video means during the backward motion of said document to form a video signal corresponding to the image of said document.

4,424,536
DATA EXCHANGE CIRCUIT FOR A MAGNETIC MEMORY APPARATUS

Yasuich Hashimoto, and Yasuyuki Oda, both of Oume, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

Filed Dec. 24, 1981, Ser. No. 334,362
Claims priority, application Japan, Dec. 26, 1980, 55-184014
Int. Cl.³ G11B 5/09
U.S. Cl. 360—51 2 Claims



1. A data exchange circuit for a magnetic memory apparatus, comprising:

first generator means for generating modified frequency modulation data pulse signals and selectable width modified frequency modulation data pulse signals from modified frequency modulation signals read from signals stored in said magnetic memory media;

phase lock loop means coupled to said first generator means for producing output signals synchronized to a predetermined edge of said selectable width data pulse signals;

clock generator means coupled to said phase lock loop means for producing clock signals based on said output signals;

said first generator means comprising delay circuit means for selecting the pulse width of said selectable width data pulse signals;

gating means for logically combining said selectable width data signals and said phase lock loop output signals to produce phase optimized data signals defining a predetermined phase margin relative to said clock signals; and

second generator means electrically connected to said clock generator means and said gating means for generating a non-return-to-zero signal based on the state of said phase optimized data signals at a predetermined edge of said clock signals.

4,424,537
MAGNETIC RECORDING DEVICE

Yoshimistu Sunaga, Saitama, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jan. 4, 1982, Ser. No. 336,985
Claims priority, application Japan, Jan. 8, 1981, 56-1474
Int. Cl.³ G11B 5/47, 5/02
U.S. Cl. 360—66 4 Claims

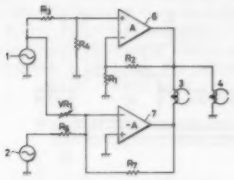
1. A magnetic recording device comprising:

a source of recording bias signal;

an inverting first amplifier and a non-inverting second amplifier receiving said bias signal, each amplifier having an output;

a recording head having first and second terminals connected across said amplifier outputs;

an erasing head which is connected between said first terminal of said recording head and a reference potential; and

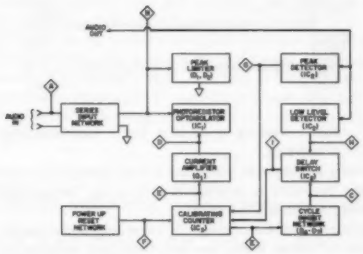


a recording signal source for applying a recording signal to an input terminal of the amplifier which has its output connected to the second terminal of said recording head.

4,424,538
TAPE RECORDER WITH DIGITAL AUTOMATIC LEVEL CONTROL

Ronald K. Greene, North Las Vegas, Nev., assignor to 50 States Distributing Company, Las Vegas, Nev.

Filed Feb. 8, 1982, Ser. No. 346,568
Int. Cl.³ G11B 5/02
U.S. Cl. 360—68 8 Claims



1. An automatic level control circuit having input means for carrying an input signal, output means for carrying an output signal, peak detecting means for detecting input signal peaks above a desired level, low level detecting means for determining an averate input signal below a predetermined level, and digital counting means having a voltage output level responsive to signals from the peak detecting means and low level detecting means.

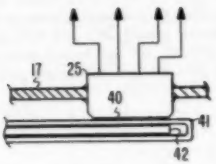
4,424,539
MAGNETIC DISK-CONTROL TRACK READ THROUGH ENVELOPE

Steven D. Keidl, and Karl A. Shidler, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 23, 1981, Ser. No. 333,837
Int. Cl.³ G11B 5/012, 5/82
U.S. Cl. 360—69 29 Claims

1. In a magnetic disk assembly including a flexible disk having a magnetic recording coating on at least one surface thereof and positioned within a disk carrier having an aperture therein for permitting a magnetic transducer to coact with said coating, the improvement comprising:

at least one magnetic storage track at a location which is not accessible through said aperture,



said storage track containing control information readable through said carrier.

4,424,540

CASSETTE LOADING ASSEMBLY ESPECIALLY FOR USE IN VIDEO CASSETTE TAPE RECORDERS

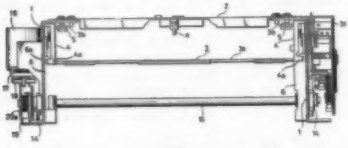
Akira Naoi, Yaita, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Apr. 27, 1981, Ser. No. 257,603

Claims priority, application Japan, Apr. 30, 1980, 55-59160; Apr. 30, 2980, 55-59162

Int. Cl.³ G11B *15/66, 25/06*

U.S. Cl. 360—71 **7 Claims**



1. A cassette loading apparatus for a front-loading tape recorder comprising:

a housing having side walls and a front portion, an opening being provided in said front portion for horizontally inserting a cassette;

a cassette carrier for operatively receiving said cassette, said cassette carrier being movably mounted relative to said housing between an insert position to an operative position and between an operative position to an eject position;

at least one fixed guide being mounted on said side wall;

horizontal and vertical guide grooves being disposed in said fixed guide;

a guide boss being operatively attached to said cassette carrier for slidable engagement with said horizontal guide groove;

a movable guide being slidable mounted within said vertical guide groove;

a horizontal guide groove being disposed within said movable guide;

drive means for providing a drive force for moving said cassette carrier between said insert position to said operative position and from said operative position to said eject position;

control means for sequentially operating said drive means for automatically moving said cassette carrier to said operative position after a cassette is inserted therein and for automatically moving said cassette carrier to said eject position upon actuation of an eject signal;

upon insertion of a cassette within said cassette carrier, said cassette carrier being confined to be sequentially in horizontal sliding contact with said guide boss being disposed in said horizontal guide in said fixed guide, in horizontal sliding contact with said guide boss being disposed in said horizontal guide groove in said movable guide and in vertical sliding contact with said movable guide being disposed within said vertical guide groove.

4,424,541

APPARATUS AND METHOD FOR MULTI-TRACK RECORDING OF A DIGITAL SIGNAL

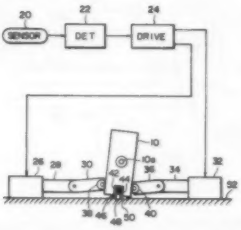
Kazuo Koinuma, and Masami Yamazaki, both of Yokohama, Japan, assignors to Victor Company of Japan, Limited, Yokohama, Japan

Filed Feb. 25, 1981, Ser. No. 238,099

Claims priority, application Japan, Feb. 29, 1980, 55-24675

Int. Cl.³ G11B *21/02*

U.S. Cl. 360—75 **11 Claims**



1. A tape recording and/or reproducing apparatus for recording and/or reproducing information in the form of a digital signal on and from a plurality of parallel longitudinal tracks on a magnetic recording tape via a multi-track head having a plurality of spaced apart head gaps aligned along a center axis thereof, the number of said plurality of head gaps being substantially equal to one half the number of said tracks, and the spacing between adjacent head gaps being substantially equal to the length of each head gap, so that said head gaps scan alternate tracks, means for orienting said multi-track head so that said center axis of said multi-track head assumes first and second inclined positions which are inclined in opposite directions with respect to a transverse direction of said magnetic recording tape and means for producing relative movement between said tape and said head in first and second, opposite, directions wherein said head scans odd and even tracks of said tape, respectively, said means for orienting said head operable so that said center axis of said multi-track head may assume respectively said first inclined position when scanning even or odd tracks in one of said directions of relative movement, and said second inclined position when scanning said odd or even tracks in the opposite direction of relative movement between said head and said tape to complete scanning of said plurality of parallel longitudinal tracks.

4,424,542

MAGNETIC HEAD AND METHOD OF PRODUCING SAME

Takashi Ujihara, Kawagoe; Akiyoshi Inoue, Tokorozawa; Youzou Yamada, Tokorozawa; Shinji Yasuda, Tokorozawa; Shuji Takeda, Tokorozawa, and Takao Iorol, Tokorozawa, all of Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed May 15, 1981, Ser. No. 264,121

Claims priority, application Japan, May 19, 1980, 55-066288

Int. Cl.³ G11B *5/11, 5/12, 5/27*

U.S. Cl. 360—121 **7 Claims**

1. A magnetic head composed of at least two units, each unit comprising

a shielding case half having a notched window formed therein;

support means provided within said shielding case half; and

at least one core supported by said support means within the shielding case half, one end portion of said core defining a

gap surface, said gap surface extending outside of said shielding case half through said notched window, wherein

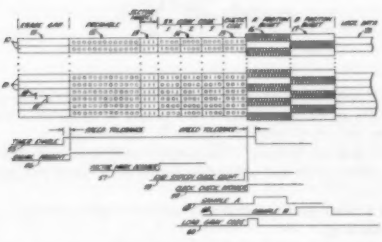
at least two of said units are joined to each other such that said gap surface of one unit faces the gap surface of the core of an adjacent unit.

4,424,543

METHOD AND APPARATUS FOR RECORDING TRANSDUCER POSITIONING INFORMATION

Martyn A. Lewis, Pacific Palisades; Steven K. Penniman, Goleta, and David A. Sutton, Santa Ynez, all of Calif., assignors to DMA Systems Corporation, Goleta, Calif.

Filed Nov. 16, 1981, Ser. No. 321,747
Int. Cl.³ G11B *5/82, 21/10, 21/08*
U.S. Cl. 360—135 **9 Claims**



1. In a disc having opposed surfaces, at least one of said surfaces being coated with a magnetic material, said disc being adapted to be mounted on a spindle for rotation relative to a magnetic transducer positioned for recording data on and reading data from said surface, a plurality of concentric annular tracks being defined on said surface of said disc, each of said tracks being divided into a plurality of sectors, each such sector having associated therewith prerecorded data for identification thereof, the improvement wherein said prerecorded identification data comprises:

a track identification code recorded a plurality of times in succession, said code changing between adjacent sectors in adjacent tracks; and

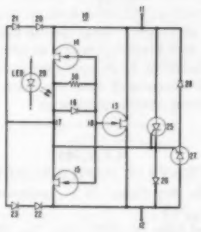
a clock shift check code recorded immediately following the last recorded one of said track identification codes, the same clock shift check code being recorded for each sector of every track.

4,424,544

OPTICALLY TOGGLED BIDIRECTIONAL SWITCH

Gee-Kung Chang, New Providence; Mahmoud A. El Hamamsy, Watchung; Adrian R. Hartman, New Providence, and Orval G. Lorimor, Warren, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 9, 1982, Ser. No. 347,299
Int. Cl.³ H02H *9/00*
U.S. Cl. 361—56 **21 Claims**



1. A normally-on switch comprising a pair of terminals,

semiconductive circuit means connected between said terminals including a pair of serially connected normally-on field-effect transistors forming a current path between said terminals, the point between said two transistors forming a control node for providing controllable conduction between said terminals and including photovoltaic means for switching the state of conduction, and

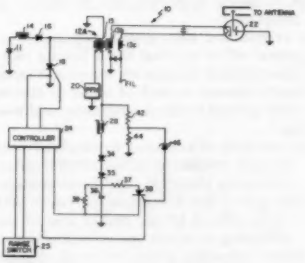
protective circuit means connected between said terminals for protecting the semiconductive circuit means against current or voltage surges including at least one thyristor connected essentially in parallel between said terminals, the gate of each being effectively connected to said control node.

4,424,545

TAILBITER AND OPEN MAGNETRON PROTECTION CIRCUIT

Merle W. Faxon, Kingston, N.H., assignor to Raytheon Company, Lexington, Mass.

Filed Mar. 15, 1982, Ser. No. 357,943
Int. Cl.³ H02H *9/04*
U.S. Cl. 361—91 **12 Claims**



1. In combination:

a radar modulator including a transformer having a primary winding and a secondary winding connected to provide modulator pulses to a magnetron;

said transformer having an independent winding magnetically coupled to said primary and secondary windings and adapted to reflect a lower leakage reactance to the secondary winding of said transformer than to said primary winding;

one end of said independent winding connected to ground;

a saturable reactor connected to the other end of said independent winding and an SCR adapted to maintain a predetermined pulse width and store excess pulse energy in a capacitor circuit upon saturation of said saturable reactor;

means including said SCR connected in parallel with said capacitor circuit and adapted to discharge said excess pulse energy during the interpulse period of said radar modulator; and

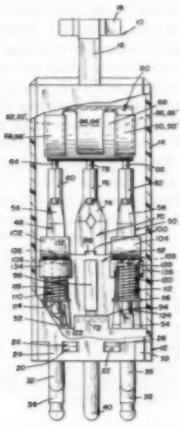
means including a zener diode connected from the other end of said independent winding and the input of said SCR, said zener diode adapted to initiate conduction in said SCR to present a protective load on said primary winding in response to excess voltage due to failure of said magnetron to fire, said loaded primary winding thereby preventing said modulator from applying excess operating voltage to said magnetron and associated circuitry during misfire or open circuit conditions.

4,424,546

MINIATURE CENTRAL OFFICE SURGE PROTECTORS

Thomas J. Smith, Bay Shore, N.Y., assignor to TII Industries Inc., Copiagur, N.Y.

Filed May 24, 1982, Ser. No. 381,360
Int. Cl.³ H02H 9/04
U.S. Cl. 361—119 **11 Claims**



1. A miniature surge protector for central office use, or the like, comprising:

(a) an insulated base means adapted to be received by a central office terminal block having two pairs of in-line open terminal receptacles, one pair of terminal receptacles being disposed in each of a pair of communication lines, and a ground terminal receptacle, said base means including:

(i) two pairs of extending terminals adapted to be received by said receptacles of said central office terminal block providing electrical conductive contact therebetween,

(ii) a pair of first bracket means, one of said bracket means being affixed to one end of one of each pair of said extending terminals and extending upwardly therefrom,

(iii) an extending ground terminal adapted to be received by said ground receptacle of said central office terminal block,

(iv) a second bracket means, said second bracket means being affixed to one end of said extending ground terminal and extending upwardly therefrom;

(b) a pair of heat coils, one of said heat coils being affixed to each of said bracket means proximate each of said one extending terminals and in electrical conductive contact therewith, the other end of said heat coils being conductively connected to the other of said pair of extending terminals proximate thereto, said heat coil being provided with a centrally disposed movable electrical contact in electrical conductive contact with one end of said coil and maintained in a first position by said heat coil, said heat coil being movable to a second position responsive to a current overload through said coil;

(c) insulating cover means disposed on the free end of said heating coils, said cover means being provided with a centrally disposed aperture adapted to permit passage of said heat coil movable contact therethrough;

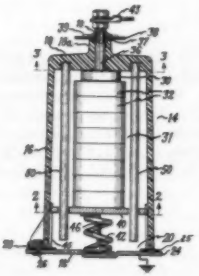
(d) spring means mounted to said second bracket means, in electrical conductive contact therewith, and having a pair of extending arms, said extending arms being in mechanical contact with each said insulating cover means urging each said soil towards said second position, said heat coil in said second position permitting said contact to extend through said cover means aperture and into electrical conductive contact with said spring means.

4,424,547

SURGE SUPPRESSOR CONSTRUCTION

Charles H. Titus, Newtown Square, Pa., and John E. Zlupko, Marlton, N.J., assignors to General Electric Company, King of Prussia, Pa.

Continuation of Ser. No. 203,837, Nov. 4, 1980, abandoned. This application Jan. 22, 1982, Ser. No. 341,711
Int. Cl.³ H02H 9/04
U.S. Cl. 361—127 **6 Claims**



1. A surge suppressor for limiting the magnitude of the surge voltages appearing between two points in an electric power system at widely different potentials, comprising:

(a) a tubular housing of insulating material having one end open and an end wall of insulating material at its opposite end,

(b) a metal end cap sealingly joined to said one end of the housing,

(c) a metal terminal at the other end of said housing extending through said end wall and having a portion located within said housing,

(d) a stack of metal-oxide varistor blocks within said housing having two opposed ends, one of which bears against said portion of said terminal, said stack having an external diameter much smaller than the internal diameter of said tubular housing so that a generally cylindrical space is present between said stack and the surrounding wall of said housing,

(e) a metal plate bearing against the other end of said stack of blocks,

(f) a spring located between said metal end cap and said metal plate and urging said plate into engagement with said other end of said stack,

(g) a plurality of rods of insulating material fixed to said end wall independently of said terminal and extending through openings in said metal plate registering with said rods, said

rods extending alongside said stack through said cylindrical space and limiting lateral movement of said stack in response to vibrations and mechanical shock,

(h) and means at the outer periphery of said metal plate engaging said housing for blocking rotation of said metal plate about the central axis of said tubular housing but allowing axial motion of said plate relative to said housing.

4,424,548

CENTRAL LOCKING SYSTEM FOR LOCKABLE ENTRIES OF BUILDINGS OR VEHICLES, PARTICULARLY MOTOR VEHICLES

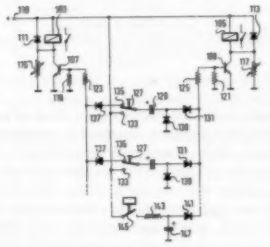
Rainer Fey, Schweinfurt; Gerhard Dumbser, Niederwerrn, and Arthur Laun, Gochsheim, all of Fed. Rep. of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany

Filed Jul. 23, 1981, Ser. No. 285,990

Claims priority, application Fed. Rep. of Germany, Aug. 13, 1980, 3030569

Int. Cl.³ H01H 47/22

U.S. Cl. 361—152 **7 Claims**



1. A central locking system for locking or opening a number of closure members of buildings or vehicles at one time in response to actuation of a control switch, comprising a number of lock bolt mechanisms each for providing lock movement in a selected one of first and second directions to a lock element associated with one of the closure members in response to a drive pulse, at least one control switch which is selectively actuable to one of a first and a second switching position, a pulse drive circuit including a capacitor coupled to each of said lock bolt mechanisms wherein said drive circuit produces a selected one of a first drive pulse corresponding to the first direction of lock movement and a second drive pulse corresponding to the second direction of lock movement in response to current which flows through said capacitor, a charging current circuit coupled to said capacitor for directing a charging current to said capacitor to produce said first drive pulse when said control switch is moved to said first switching position so that said lock bolt mechanisms move the lock elements in the first direction, a discharging current circuit coupled to said capacitor for directing a discharging current from said capacitor to produce said second drive pulse when said control switch is moved to said second switching position so that said lock bolt mechanisms move the lock elements in the second direction, wherein said control switch comprises a single-pole switch including a first contact for forming part of a first contact path wherein a power source is connected in series with said capacitor and said lock bolt mechanisms for providing lock movement in the first direction, and a second contact for forming a part of a second contact path wherein said capacitor is connected in parallel to said lock bolt mechanisms for providing lock movement in the second direction, and electronic switches for actuating said lock bolt mechanisms, said electronic switches including control electrodes coupled to said capacitor for switching a current in response to a voltage applied to said control electrodes.

4,424,549

CORONA DEVICE

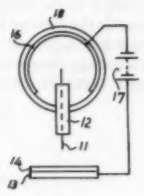
Hendrik Ensing, Velden, Netherlands, assignor to Oce-Nederland B.V., Venlo, Netherlands

Filed Feb. 22, 1982, Ser. No. 350,748

Claims priority, application Netherlands, Mar. 16, 1981, 8101260

Int. Cl.³ H01T 19/04

U.S. Cl. 361—230 **10 Claims**



1. A corona device suitable for use in an electrographic apparatus, comprising a first conductive element, a body of insulating material having a multiplicity of electrode pins embedded therein, all of said electrode pins having respective end portions thereof projecting from said body at a first side of said body and also at an opposite, second side thereof, the projecting portions of said pins at said first side extending into the vicinity of yet being spaced from said first conductive element so as to provide a space in which a material to be charged can be present between said pins and the first conductive element a second conductive element having in its vicinity yet being spaced from the portions of said electrode pins projecting from said second side of said body of insulating material so that electric discharges can flow between said second conductive element and said projecting portions at said second side and means including a D.C. voltage source having opposite poles thereof connectable respectively with said first and said second conductive elements for subjecting said pins to a difference of potential such that each of said projecting end portions of said pins at said first side will generate a spray of corona discharges directed onto a material present in said space.

4,424,550

ELECTROMAGNETIC TRANSDUCER

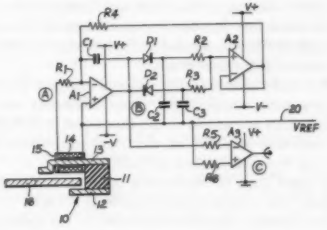
Gerald B. Smith, Birmingham, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Jul. 6, 1981, Ser. No. 280,526

Claims priority, application United Kingdom, Jul. 19, 1980, 8023676

Int. Cl.³ F02P 5/06

U.S. Cl. 361—236 **7 Claims**



1. An electromagnetic transducer comprising a source of magentic flux, pole means linked with said source to form a magnetic circuit, a winding linked with said magnetic circuit, a relatively movable member of magnetic material shaped so as

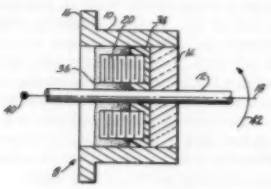
to vary the reluctance of said magnetic circuit as it moves relative to said pole means, said winding producing electrical pulses of duration which is short relative to the intervening time interval of the relatively movable member moves relative to the pole means, said pulses being alternately of opposite polarity, and a discriminating circuit comprising an active integrating circuit connected to said winding and providing an output signal dependent on the integral of the signal produced by said winding, a variable bias circuit for the integrator which is sensitive to the output of the integrator and biases the input to the integrator so that the positive and negative excursions of the integrator output have a desired relationship to a reference voltage level and a voltage comparator connected to compare the integrator output with said reference voltage level.

4,424,551

HIGHLY-RELIABLE FEED THROUGH/FILTER CAPACITOR AND METHOD FOR MAKING SAME

Robert A. Stevenson, Canyon Country, and Albert W. Dey, Burbank, both of Calif., assignors to U.S. Capacitor Corporation, Sun Valley, Calif.

Filed Jan. 25, 1982, Ser. No. 342,497
Int. Cl.³ H01G 4/42, 4/22
U.S. Cl. 361—302 21 Claims



16. A capacitor comprising:

a canister having first and second mutually insulated electrically conductive interior surfaces;

a capacitive structure having a plurality of pairs of spaced apart electrically conductive plates, a first electrically conductive bus connecting one plate of each pair together to the exclusion of the other plate of each pair, and a second electrically conductive bus connecting the other plate of each pair together to the exclusion of the one plate, the capacitive structure lying in the canister to define a first gap therebetween and so the second bus is adjacent to the second surface of the canister to define a second gap therebetween;

a first mass of connecting material bridging the first gap, the first mass comprising a cured thermoset and conductive particles suspended in the thermoset in sufficient concentration to establish an electrical connection between the first bus and the first surface; and

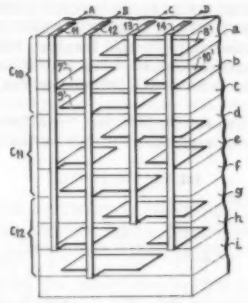
a second mass of connecting material bridging the second gap, the second mass comprising a cured thermoset and conductive particles suspended in the thermoset in sufficient concentration to establish an electrical connection between the second bus and the second surface, the first and second masses being insulated from each other, at least one mass having an uneven concentration of conductive particles in the connecting material.

4,424,552

CONDENSER BLOCK AND VOLTAGE MULTIPLIER COMPRISING SUCH A CONDENSER BLOCK

Roland Saint Marcoux, Bagnolet, France, assignor to L.C.C.-C.I.C.E. Compagnie Europeene de Composants Electroniques, Bagnolet, France

Filed May 28, 1982, Ser. No. 383,163
Claims priority, application France, Jun. 5, 1981, 81 11218
Int. Cl.³ H01G 1/14, 4/38
U.S. Cl. 361—306 5 Claims



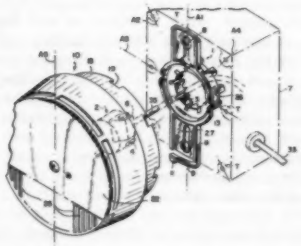
1. A condenser block comprising a stack of insulating layers, separated by metal plates, arranged in relation to one another in such a way that at least part of each such plate is approximately opposite at least part of another such plate, in the direction of stacking, the said metal plates forming the condenser plates and the said block being characterized by the fact that one metal plate, positioned between one pair of insulating layers, and opposite part of a second metal plate, placed above the first plate, between a second pair of insulating layers, is also opposite part of a third metal plate, between a third pair of insulating layers, and that the second and third pairs have not more than one insulating layer in common.

4,424,553

MULTIDIRECTIONAL MOUNT FOR ELECTRICAL INSTRUMENTS

Angelo A. Marsocci, Duxbury; Robert B. Powers, Norwell, and Bruce E. Chapman, Hanover, all of Mass., assignors to American District Telegraph Company, Jersey City, N.J.

Filed Nov. 9, 1981, Ser. No. 319,430
Int. Cl.³ H02B 1/04; H05K 7/12
U.S. Cl. 361—427 11 Claims



1. A mount for an electrical instrument having a predetermined vertical orientation comprising:

a bracket member with means for attachment to any one of several types of junction box at any of several possible angles determined by the type and installation of the box selected;

a base member holding the electrical instrument in mechanical connection to a junction box, the base and bracket member having a bayonet coupling including at least one knob element interengaging with one or more groove elements on the respective members, an even number of one element being equiangularly spaced around the coupling axis at angles including the possible box angles, the knob and groove element dimensions allowing play for fine angular adjustment of the interengaged base and bracket members; and

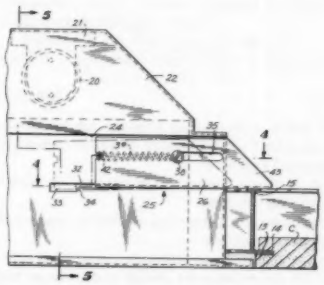
interengaging means on the bracket and base members including a pawl on one member adjustably engaging an annular ratchet on the other member for holding the base in fine adjusted position.

4,424,554

CEILING FIXTURE WITH IMPROVED MOUNTING MEANS

Leonard E. Woloski, Jersey City, and Walter E. Wyles, Somerset, both of N.J., assignors to Lightolier Incorporated, Jersey City, N.J.

Filed Sep. 28, 1982, Ser. No. 426,173
Int. Cl.³ F21S *1/06*
U.S. Cl. 362—365 **5 Claims**



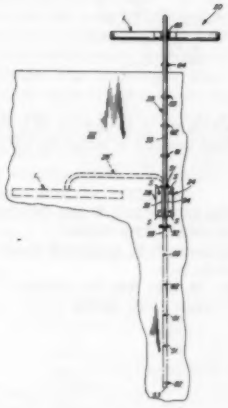
1. A recessed lighting fixture adapted to be mounted to a ceiling tile support grid or the like comprising a generally rectangular downwardly open light housing having parallel side and end walls and a top wall, each of the said side walls having movably mounted thereon a support latch assembly shiftable in a path parallel to said sidewalls from a retracted position whereat said latch members are disposed inwardly of said end walls to an extended position whereat portions of said latch members project beyond said end walls, horizontal ledge portions extending laterally from said side walls and overlying said latch members, said latch members each including spring means biased between same and said housing and yieldingly urging the same outwardly toward said projected position, and detent means interposed between said latch members and said housing releasably retaining said latch members in said retracted position against the force of said spring means, said latch members further including a horizontal top wall portion underlying said ledge portions, said latch members being mounted for limited pivotal movement relative to said housing, whereby said top wall portions of said latch members are biased into abutting relation to said ledge portions by the weight of said fixture in said projected position of said latch members.

4,424,555

CONCEALABLE LIGHTING FIXTURE

Ronald H. Krubsack, Vernon Hills; Jerome C. Caruso, Lake Forest, both of Ill., and Larry J. Krubsack, Colgate, Wis., assignors to Hartland Products Company, Inc., Hartland, Wis.

Filed Feb. 22, 1982, Ser. No. 351,015
Int. Cl.³ F21M *3/18*
U.S. Cl. 362—419 **25 Claims**



1. A concealable lighting fixture comprising a mounting member adapted to be mounted on a vertical surface, such as the hidden side of a large object capable of concealing the fixture, or on a wall adjacent to such an object, bearing means carried by said mounting member, a support member mounted in said bearing means for movement between an elevated, operative position and a depressed, position concealed by said object, said support member having upper and lower ends, lamp means carried at said upper end of said support member, and releasable retaining means carried by said bearing means and said support member for retaining said support member in said elevated, operative position while permitting said support member and said lamp means to be swung through a range of angular positions about a vertical axis through said bearing means, said releasable retaining means also being operable when said support member is disposed in a predetermined angular position with respect to said bearing means to permit said support member to be shifted downwardly from said elevated position to said depressed, concealed position.

4,424,556

SELF-OSCILLATING DC TO DC CONVERTER

Mikio Maeda, Katano; Masahiro Kosaka, Suita, and Katsuhiko Higashiyama, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Aug. 13, 1981, Ser. No. 292,445
Int. Cl.³ H02M *3/335*
U.S. Cl. 363—17 **2 Claims**

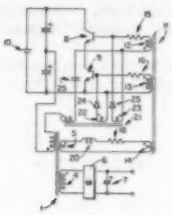
1. A self-oscillating DC to DC converter comprising:

at least one pair of transistors;

a converting transformer having primary and secondary windings for transferring energy to a load through a rectifier means by self-oscillating said at least one pair of switching transistors;

a driving transformer having windings for providing base currents to said at least one pair of switching transistors through a resistor and an inductance which are connected in series between said secondary winding of said converting transformer and one of said windings of said driving

transformer; and a current transformer for providing additional base currents to said at least one pair of switching transistors which are in proportion to collector currents of said at least one pair of switching transistors.

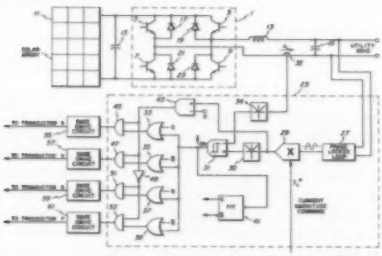


4,424,557

FULL BRIDGE PWM INVERTER WITH DISTRIBUTED DEVICE SWITCHING

Robert L. Steigerwald, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 28, 1981, Ser. No. 334,843
Int. Cl.³ H02P *13/20*; H02M *7/537*
U.S. Cl. 363—98 **2 Claims**



1. A control for a full bridge current inverter, said inverter having a first upper and a first lower switching device connected in series across an external dc source and a second upper and a second lower switching device connected in series across the external dc source, the output of said inverter being available between said series connected upper and lower switching devices, each of said switching devices connected in inverse parallel with a diode to carry reverse currents, said control comprising:

current measuring means for providing a signal proportional to the inverter output current;

commanded reference waveform generating means for providing a current reference waveform signal;

switching signal generating means for comparing with hysteresis the inverter output current signal and the reference waveform signal for generating a first switching signal, when the inverter output current signal exceeds the reference waveform signal by a predetermined amount and for generating a second signal when the inverter output current signal is less than the reference waveform signal by a predetermined amount;

flip-flop means responsive to said switching signal transitions so that said flip-flop is in a different state when each successive first switching signal is generated;

signal polarity sensing means responsive to said reference waveform signal for determining the commanded direction of output current flow;

means responsive to said signal polarity sensing means and said switching signal generating means for biasing into conduction said first upper switching device and said second lower switching device when the output current is commanded to flow in a first direction and said inverter load current signal is less than said reference waveform by a predetermined amount, and biasing into conduction said first lower switching device and said second upper switching device when the output current is commanded to flow in a second direction opposite to the first and said inverter load current signal is less than said reference waveform by a predetermined amount; and

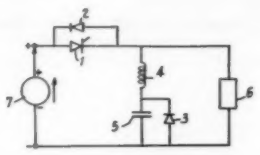
means responsive to said flip-flop means, said signal polarity sensing means and said switching signal generator for biasing out of conduction one of the two conduction switching devices when said inverter load current signal exceeds said reference waveform by a predetermined amount, so that alternate ones of said two conducting switching devices are biased out of conduction every time said inverter output current exceeds the reference waveform signal by a predetermined amount thereby distributing the switching duty among the switching devices.

4,424,558

FREELY COMMUTATING CHOPPER CIRCUIT

N'Guyen U. Thuy, LaVerpilliere, France, assignor to Societe CEM Compagnie ElectroMecanique et Cie, Paris, France

Filed Jul. 17, 1981, Ser. No. 284,211
Claims priority, application France, Jul. 17, 1980, 80 15805
Int. Cl.³ H02M *3/135*
U.S. Cl. 363—124 **4 Claims**



1. A freely commutating chopper circuit for the supply of power to a load from a source of direct current, comprising

a principal thyristor;

a return diode connected in reverse parallel relationship with said thyristor;

a series resonant commutation circuit connected in parallel with the load; and

a free-wheeling diode connected in parallel with a capacitor of the series resonant circuit and in series with a coil of said resonant circuit, so that said coil conducts both the commutation current and at least a major portion of the free-wheeling current and thereby serves both as the commutation coil in the resonant circuit and the coil limiting variations of the current in said principal thyristor.

4,424,559

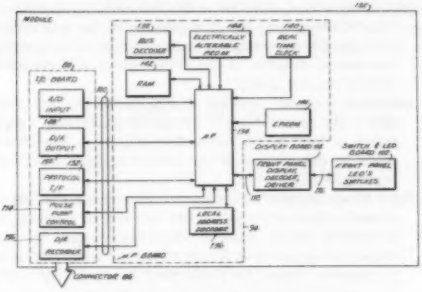
MODULAR INSTRUMENTATION FOR MONITORING AND CONTROL OF BIOCHEMICAL PROCESSES

Robert S. Lorincz, Milltown; Carmine Masucci, Piscataway, and Daniel N. Bull, Upper Montclair, all of N.J., assignors to New Brunswick Scientific Co., Inc., Edison, N.J.

Filed Feb. 27, 1981, Ser. No. 238,737
Int. Cl.³ G06F *15/46*
U.S. Cl. 364—131 **66 Claims**

1. A module for monitoring and control of one of a plurality of variables in a biochemical process in response to sensor output signals comprising a microprocessor; first memory means coupled to said microprocessor for storing the program for the operation of said module to monitor and control one of said variables, said first memory means being releasably mounted in said module for the substitution thereof to permit the selection of the first memory means containing the pro-

gram associated with the desired one of said variables; a second electrically alterable memory means coupled to said microprocessor for storing at least variable set point data for use in the control of said variable; manual input means coupled to



said second memory means for selectively inputting said set point data to said second memory means; and interface means coupled to said microprocessor for at least receiving signals representative of sensor output and applying same to said microprocessor for effecting variable control.

4,424,560

COMPONENT OF AN ELECTRIC OR ELECTRONIC CIRCUIT, IN PARTICULAR A DIODE AS WELL AS A BRIDGE RECTIFIER AND ALTERNATOR OF MOTOR VEHICLES COMPRISING IT

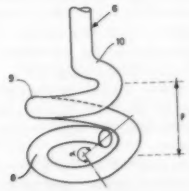
Jerzy R. Kasperski, Paris, France, assignor to S.E.V. Alternateurs, Issy-les-Moulineaux, France

Filed Nov. 24, 1981, Ser. No. 324,554

Claims priority, application France, Dec. 1, 1980, 80 25465

Int. Cl.³ H02M *1/00*

U.S. Cl. 363—144 **14 Claims**



1. An electric or electronic circuit component including: a body portion having a flat surface; and a filiform terminal, said terminal including vibration damper means constituted by coils formed around an axis at one end of the filiform terminal, and said vibration damper means including a substantially planar end coil for soldering or said terminal to said body portion.

4,424,561

ODD/EVEN BANK STRUCTURE FOR A CACHE MEMORY

Philip E. Stanley, Westboro; Richard P. Brown, Acton, and Arthur Peters, Sudbury, all of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Dec. 31, 1980, Ser. No. 221,854

Int. Cl.³ G06F *13/00, 13/06*

U.S. Cl. 364—200 **9 Claims**

1. In a data processing system wherein data words are stored in a system memory including a plurality of storage locations and each of the storage locations is associated with either an odd or an even system address number, a cache memory comprising:

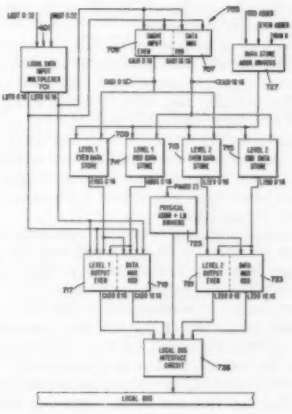
a first odd data store for storing data words, said first odd data store including a first plurality of memory locations:

a second odd data store for storing data words, said second odd data store including a second plurality of memory locations, each of said first plurality of memory locations being pair-wise associated with a different one of said plurality of second memory locations, and each pair of associated first and second memory locations being further associated with selected ones of said plurality of odd system address numbers;

a first even data store for storing data words, said first even data store including a third plurality of memory locations;

a second even data store for storing data words, said second even data store including a fourth plurality of memory locations, each of said third plurality of memory locations being pair-wise associated with a different one of said plurality of fourth memory locations, and each pair of associated third and fourth memory locations being further associated with selected ones of a plurality of even address numbers;

means for transferring said data words stored in said system memory and said system address numbers associated therewith from said system memory to said cache memory;



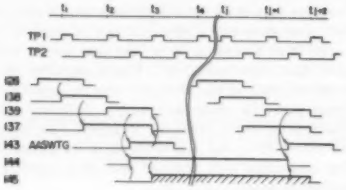
cache data input multiplexer means coupled to said transferring means for receiving said transferred data words and for supplying said received data words to said first and second odd and even data stores; and

cache address driver means for receiving said transferred system address numbers and for controlling said first and second odd data stores to store a received data word associated with an odd system address number at a selected one of said first and second plurality of memory locations, said selected one of said first and second plurality of memory locations being associated with an address number comprising said odd system number modulo than total number of storage locations in said first plurality of storage locations plus one and for controlling said first and second even data stores to store a received data word associated with an even system address number at a selected one of said third and fourth plurality of memory locations, said selected one of said third and fourth plurality of memory locations being associated with an address number comprising said received even system address number modulo the total number of storage locations in said third plurality of storage locations.

4,424,562
DATA PROCESSING SYSTEM HAVING PLURAL ADDRESS ARRAYS

Kazutoshi Genma, Sagamihara, and Akio Sasaki, Hadano, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 22, 1980, Ser. No. 180,473
Claims priority, application Japan, Aug. 24, 1979, 54-107766
Int. Cl.³ G06F *13/06*
U.S. Cl. 364—200 2 Claims



1. A data processing system including a plurality of processing units and a main storage unit containing information shared by each of said processing units, the information in the main storage unit being addressed by addressing bits, at least one of said processing units comprising:

a. a buffer memory for storing part of the information stored in said main storage unit;

b. a plurality of address arrays each for storing at least some of the address bits constituting addresses in said main storage unit corresponding to information stored in said buffer memory, said address arrays being controlled so that they store identical contents;

c. a first detecting means for detecting whether or not there is coincidence in one of said address arrays in terms of at least some of the address bits constituting an access address issued from said at least one processing unit to said main storage unit;

d. a second detecting means for detecting whether or not there is any coincidence in a different one of said address arrays from said address array in terms of said at least some of the address bits constituting a store address issued from another processing unit to said main storage unit;

e. means for cancelling that address of said at least same of the address bits which has been detected as being coincident by said second detecting means; and

f. means for controlling said first and second detecting means so that said first and second detecting means will carry out, during a period from completion of cancellation by said cancelling means until another coincidence will be detected in said second detecting means and cancellation thereof will be carried out by said cancelling means, detection operations on address arrays different from those on which said first and second detecting means are carrying out detecting operations.

4,424,563
DATA PROCESSOR INCLUDING A MULTIPLE WORD PROCESSING METHOD AND DEVICE

Todd R. Lynch, Albany, Oreg., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Sep. 5, 1980, Ser. No. 184,581
Int. Cl.³ G06F *9/00, 9/02*
U.S. Cl. 364—200 3 Claims

1. A processor for performing an operating instruction upon first and second strings of data, the processor comprising:

an instruction register for storing the operating instruction;

a first register group for storing the first data string such that a least significant word is stored in a 0-th register and a most significant word is stored in an n-th register;

a second register group for storing the second data string such that a least significant word is stored in a 0-th register and a most significant word is stored in an n-th register;

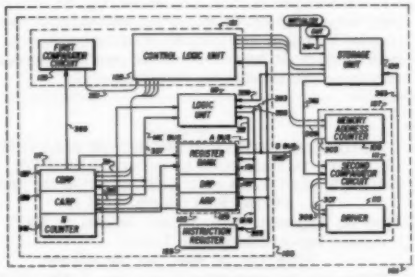
a first counter for storing a source address of a source word located within the first register group;

a second counter for storing a destination address of a destination word located within the second register group;

initializing means, coupled to the first and second counters, for initially setting the first counter to the 0-th register address of the first register group and for initially settting the second counter to the 0-th register address of the second register group;

comparator means, coupled to the second counter means and to the second register group, for generating a repeat signal as long as the destination address is less than or equal to the address of the second register group n-th register;

logic means, coupled to the instruction register, the first and second register groups, the first and second counters, the initializing means, and the comparator means, the logic means being operative for receiving the repeat signal and in response thereto for performing the operating instruction upon the source word and the destination word and



for storing a resultant word at the destination address, the logic means being further operative for detecting an absence of a repeat signal and in response to such absence for storing another first data string in the first register, for storing another second data string in the second register group, and for causing the initializing means to initialize the first and second register groups;

incrementing means, coupled to the logic means and to the first and second counters, for incrementing the first and second counters after the logic means performs the operating instruction;

a carry register coupled to the logic means for storing a carry bit generated by the logic means during the performance of the operating instruction;

shift means, coupled to the logic means and to the first and second register groups, for shifting bits within the source word and the destination word; and,

an extend register, coupled to the logic means and to the first and second register groups, for storing a portion of a word truncated by the shift means.

4,424,564
DATA PROCESSING SYSTEM PROVIDING DUAL STORAGE OF REFERENCE BITS

Mamoru Hinai, Hadano, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed May 29, 1981, Ser. No. 268,352
Claims priority, application Japan, Jun. 2, 1980, 55-73957
Int. Cl.³ G06F *13/00*
U.S. Cl. 364—200 7 Claims

1. A data processing system comprising:

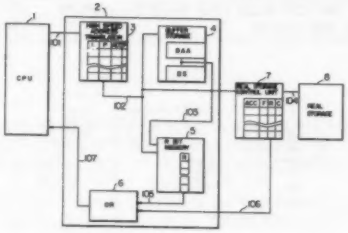
real storage means including a plurality of storage units of predetermined length for storing data;

storage key memory means for retaining storage keys, each including a reference bit corresponding to a respective storage unit of said real storage means, and including means for

setting the reference bit of the corresponding storage key therein whenever said real storage means is referred to;

buffer storage means for storing a partial copy of the data stored in said real storage means;

reference bit memory means for retaining reference bits, each corresponding to a respective storage unit of said real storage means, including means for setting the corresponding reference bit therein whenever said buffer storage means is referred to; and



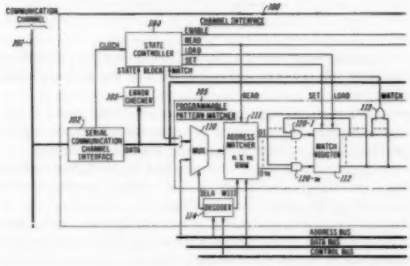
processing means for making reference to said real storage means and said buffer storage means and OR means operative when a real storage key instruction is issued by said processing means for ORing the reference bit of said storage key memory means with the corresponding reference bit of said reference bit memory means to produce a true reference bit.

4,424,565

CHANNEL INTERFACE CIRCUIT WITH HIGH SPEED DATA MESSAGE HEADER FIELD TRANSLATION AND DIRECT MEMORY ACCESS

Allen L. Larson, Thornton, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jun. 22, 1981, Ser. No. 276,074
Int. Cl.³ G06F *3/04*
U.S. Cl. 364—200 **21 Claims**



1. In a data communication system having a communication channel (101) which carries data messages to a processor (200) having data, address, and control busses and an associated memory (201) connected to said data, address and control busses, a channel interface circuit (100) for interconnecting said data, address and control busses with said communication channel (101) comprising:

interface means (102) connected to said communication channel (101) and responsive to said data message, which contains a header field having address and control portions, appearing on said communication channel (101) for outputting said data message as received on a byte-by-byte basis;

pattern matcher means (105) connected to said interface means and responsive to only said header field of said data message for generating a hardware address as the last byte of said header field is received to identify the location in said associated processor memory (201) wherein said data message is to be stored if said processor (200) is the designated destination of said data message;

incoming state controller means (104) responsive to said last byte of said header field as it is being received for seizing said data, address and control busses;

driver means (108) connected to said processor address bus and said pattern matcher means (105) and responsive to said hardware address for transmitting said hardware address on said processor address bus to activate said identified memory store location in said associated processor memory (201); and

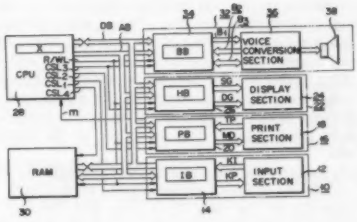
wherein said driver means (108) is also connected to said interface means (102) and said processor data bus and is responsive to said hardware address for directly storing, as received, the data portion of said data message as outputted by said interface means (102) in said activated memory store location via said processor data bus.

4,424,566

DATA PROCESSING APPARATUS WITH VOICE OUTPUT

Hanzo Tsuzuki, Fussa, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

Filed Apr. 30, 1981, Ser. No. 258,948
Claims priority, application Japan, May 8, 1980, 55-61139
Int. Cl.³ G06F *3/16*; G10L *1/08*
U.S. Cl. 364—405 **5 Claims**



1. A voice data output apparatus for an electronic cash register comprising:

input means including at least one numerical key for entering numerical data and a department key for registering the numerical data last entered by said numerical key;

control means connected to said input means which performs a registering operation based on the numerical data in accordance with the operation of said department key, said control means being arranged to perform a registering operation based on previously entered numerical data when an input signal is initially provided by the department key without first entering numerical data, and to provide a repeat signal for displaying the same data as the immediately previously entered numerical data;

visual data output means connected to said control means for producing visual data corresponding to the output of said control means; and

voice output means connected to said control means which produces a voice corresponding to said numerical data delivered from said control means wherein when said control means provides said repeat signal, said voice output means is inhibited from producing said voice corresponding to said numerical data.

4,424,567

ELECTRONIC CASH REGISTER WITH TIMEKEEPER

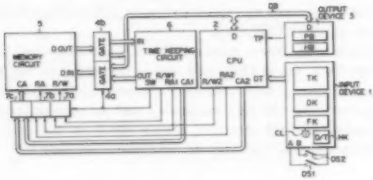
Kunio Yasutake, Akigawa, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 102,769, Dec. 12, 1979, abandoned. This application Nov. 18, 1982, Ser. No. 442,841

Claims priority, application Japan, Dec. 21, 1978, 53-157953; Dec. 21, 1978, 53-157954

Int. Cl.³ G06F *15/21, 15/02*

U.S. Cl. 364—405 2 Claims



1. A timekeeper equipped electronic cash register comprising:

a time count circuit for outputting a time count signal obtained by frequency dividing a reference pulse signal generated at a predetermined cycle;

a first memory means coupled to the time count circuit to store in a time count sequence date data at least including month and day units, said date data being sequentially updated for each day on a basis of the time count signal from the time count circuit;

a central processing unit coupled to the first memory means;

a keyboard coupled to said central processing unit and having a control switch means settable for designating various modes including a registration mode, setting mode and settlement mode; data input keys for inputting data including amount data and date data; a date setting key for causing the transferring of the date data to the first memory means via the central processing unit; and a receipt sheet issuing key for causing the issuing of a receipt sheet when a transaction is completed for a customer;

a printing device coupled to the central processing unit to print sales amount, date data, etc., on the receipt sheet; and

mode switch means coupled to the keyboard and settable to selectively designate different input sequences of date data inputted by the data input keys and different printing output sequences of the date data in the printing device,

in which said central processing unit comprises:

first converting means for causing date data comprised of a plurality of date units inputted by the operation of the data input keys to be converted to date data arranged in a time count sequence on the basis of the setting of the mode switch means when the date setting key is operated with the control switch means set in a setting mode;

second memory means for storing date data converted by the first converting means in the time count sequence;

writing means for causing the time-sequenced date data stored in the second memory means to be written into the first memory means;

reading means for reading out the date data in the first memory means when the receipt sheet issuing key is operated with the control switch means set at least to the registration mode;

a second converting means for causing the read-out time-sequenced data to be converted to date data whose date units are arranged in the seuence designated by the setting of the mode switch means, and for causing insertion of a marker code between said date units thereof so that a separation is provided on the receipt sheet between said date units; and

means for causing date data including the marker code to be delivered as printing data to the printing device.

4,424,568

METHOD OF CONTROLLING INTERNAL COMBUSTION ENGINE

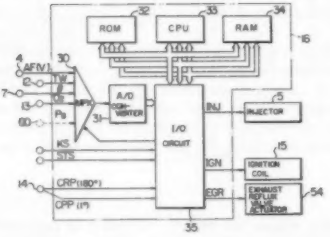
Yutaka Nishimura; Yoshishige Oyama, both of Katsuta; Hiroshi Kuroiwa, and Minoru Osuga, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

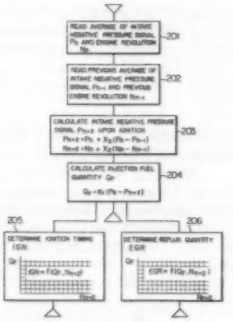
Filed Jan. 30, 1981, Ser. No. 229,840

Claims priority, application Japan, Jan. 31, 1980, 55-11349; Jan. 31, 1980, 55-11410

Int. Cl.³ F02B *3/04;* F02D *5/02;* F02M *51/00*

U.S. Cl. 364—431.07 15 Claims





1. A method of operating a control apparatus for controlling the operation of an internal combustion engine, said apparatus including

sensor means including an air flow rate meter and a crankshaft rotation angle sensor for generating output signals representative of operating conditions of the engine;

actuator means, including at least a fuel injector, for controlling operating conditions of the engine in response to control signals applied thereto; and

a data processing unit including central processor, random access memory and read only memory, for executing data calculations based upon output signals generated by said sensor means and producing therefrom control signals to be coupled to said actuator means for controlling operating conditions of the engine;

said method comprising the steps of:

(a) sampling output signals generated by said air flow rate meter and said crankshaft rotation angle sensor at predetermined timings;

(b) storing, in said random access memory, said sampled output signals;

(c) executing, in said central processor, a first prescribed calculation in accordance with selected ones of the signal samples stored in said random access memory representative of air flow rate and thereby producing first extrapolated air flow rate data;

(d) executing, in said central processor, a second prescribed calculation in accordance with selected ones of the signal samples stored in said random access memory

representative of crankshaft rotation speed and thereby producing first extrapolated crankshaft rotation speed data;

(e) executing, in said central processor, a third prescribed calculation in accordance with a prescribed relationship between said first extrapolated air flow rate data and said first extrapolated crankshaft rotation speed data and producing therefrom a fuel injection control signal representative of the amount of fuel to be injected by said fuel injector based upon said third prescribed calculation; and

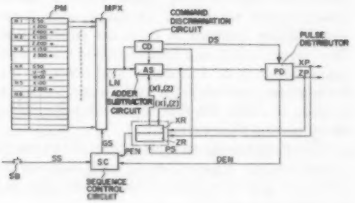
(f) applying said fuel injection control signal to said injector.

4,424,569

METHOD AND APPARATUS FOR A NUMERICAL CONTROL DEVICE FOR CONTROLLING A MACHINING DEVICE HAVING A PLURALITY OF TOOLS

Ryoji Imazeki; Hiroomi Fukuyama, and Yoshimasa Kagawa, all of Hachioji, Japan, assignors to Fujitsu Fanuc Ltd., Tokyo, Japan

Filed Jul. 14, 1981, Ser. No. 283,349
Claims priority, application Japan, Jul. 24, 1980, 55-101521
Int. Cl.³ G05B *19/417, 11/32*
U.S. Cl. 364—474 **7 Claims**



1. A method of numerically controlling a machine tool being operatively connected to receive, from a numerical control apparatus, absolute positional and coordinate setting command signals, and incremental coordinate command signals, the machine tool being operatively connected to a pulse distribution circuit, a current position register operatively connected to the pulse distribution circuit, an arithemetic means operatively connected to the pulse distribution circuit and to the current position register, and said machine tool having at least two tools operatively connected to the pulse distribution circuit and arranged to move in unison while maintaining a constant positional relationship with respect to one another, each of the at least two tools having a current position and capable of being moved relative to a workpiece in accordance with one of the absolute positional command signals to subject the workpiece to a prescribed machining operation, said method comprising the steps of:

(a) storing the current position of a first tool of the at least two tools in the current position register prior to machining the workpiece with the first tool;

(b) moving the first tool to machine the workpiece in response to pulses from the pulse distribution circuit, the pulses being provided in accordance with the current position of the first tool indicated by the current position register and one of the absolute positional command signals;

(c) computing the current position of a second tool of the at least two tools by the arithmetic means in response to one of the coordinate setting command signals;

(d) storing the computed current position of the second tool in the current position register; and

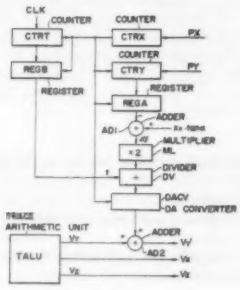
(e) moving the second tool to machine the workpiece in response to pulses from the pulse distribution circuit, the pulses being provided in accordance with the content of said current position register and one of the absolute positional command signals, whereby the workpiece is machined first by the first tool and then by the second tool.

4,424,570

TRACER CONTROL SYSTEM

Ryoji Imazeki, and Etsuo Yamazaki, both of Hachioji, Japan, assignors to Fujitsu Fanuc Limited, Tokyo, Japan

Filed Jun. 10, 1981, Ser. No. 272,200
Claims priority, application Japan, Jun. 18, 1980, 55-82567
Int. Cl.³ G05B *19/33;* **G06F** *15/46*
U.S. Cl. 364—520 **4 Claims**



1. A tracer control system comprising

mean for calculating the magnitude of the displacement of a stylus tracing the surface of a model with respect to a tracer head from displacement signals from the tracer head, and for calculating trace velocities along (1) a set trace axis in a plane defined by two axes of the tracer control system and (2) a third axes of the tracer control system, so that the magnitude of the displacement may become constant,

a respective position detector for detecting the position of said tracer head along each of said two axes, one of said two axes being a selected axis and the other being a non-selected axis, and said set trace direction being at a selected angle to said non-selected axis, and

angle correcting means for determining the difference between the set trace direction and the actual trace direction in said plane in terms of the difference between the actual and a desired output of the position detector corresponding to said selected axis for a predetermined constant distance along the non-selected axis, and for correcting for each said difference by controlling the component of trace velocity along said selected axis for the subsequent motion through said predetermined constant distance along the non-selected axis during said tracing along said set trace direction,

whereby said tracing is performed along said set trace direction.

4,424,571

RECIPROCATING COMPRESSOR ANALOG

Carl E. Edlund, Castroville, Tex., assignor to Southern Gas Association, Dallas, Tex.

Filed Jun. 29, 1981, Ser. No. 278,391
Int. Cl.³ G06G *7/48, 7/57*
U.S. Cl. 364—806 **3 Claims**

3. An apparatus for electrically simulating a reciprocating fluid compressor, comprising:

means for simulating an intake valve;

means for simulating a discharge valve, wherein said discharge valve simulating means is coupled to said intake valve simulating means at a common point;

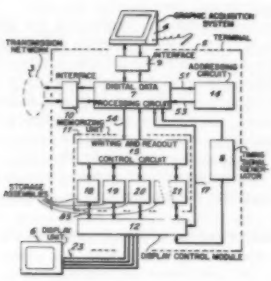
a controllable gain amplifier having an input coupled to the common point;
a capacitor coupled to an output and the input of said amplifier in a feedback arrangement;
a first memory;
means contained within said amplifier for multiplying an output signal from said first memory with a voltage proportional to the voltage present at the input of said amplifier;
a second memory;
a digital to analog converter coupled to the output of said second memory; and
means for sequentially addressing the contents of said first and second memories.

4,424,572

DEVICE FOR THE DIGITAL TRANSMISSION AND DISPLAY OF GRAPHICS AND/OR OF CHARACTERS ON A SCREEN

Bernard Lorig, 18 rue de Brest, 35000 Rennes, France; Jean-Claude Rahuel, and Catherine Roux, both of Rennes, France, assignors to Etablissement Public de Diffusion dit Telediffusion de France, Montrouge and Bernard Lorig, Rennes, both of, France

Filed Sep. 9, 1980, Ser. No. 185,572
Claims priority, application France, Sep. 12, 1979, 79 22780
Int. Cl.³ G06F *3/14*
U.S. Cl. 364—900 **9 Claims**



1. In a device for a digital transmission and display of graphics on a screen, comprising at least two telewriting terminals connected by a transmission network, each terminal being associated with a graphic acquisition device and with a unit for display on a screen, each terminal being organized around a digital data processing circuit connected to said graphic acquisition device via a first interface and to the network via a second interface, the circuit receiving from one or the other interface digital data comprising in particular coordinates X and Y of points composing graphics and display codes or information enabling a display of said graphics, each terminal further comprising a unit for storing these digital data, inserted between the data processing circuit and a display control module, said module controlling the display of said points by said unit for display. each terminal comprises:

(a) a plurality of storage assemblies, each storage assembly being constituted by a random access memory (RAM) of sufficient capacity to be able to contain informations corresponding to a complete image covering said screen, said memory having a writing input, a read-out output, a validation input and an addressing input, each storage assembly comprising a logic function generator having a control input, a first signal input, a second signal input connected to the read-out output of the random access memory and a signal output connected to the writing input of said memory signal output conveying a word to be written which is a logic function of a word applied to the first signal input and a word applied to the second input;

(b) an address computing circuit receiving, via the data processing circuit, for each current point written on the graphic acquisition device, said coordinates X and Y of said point and delivering on octet P_i comprising only one binary element equal to "1", said octet being applied to the first input of the logic function generator, and a digital signal constituting an address for said octet P_i;

(c) a circuit for controlling writing and read-out in the storage assemblies, comprising:

(c_1) a selector circuit having an input connected to the output of the data processing circuit from which it receives four signals: a first signal which is said octet P_i, a second signal which is a validation code formed by as many binary elements as there are storage assemblies, a third signal which is a logic function code, and a fourth signal which is an address of said octet P_i, the selector having first, second, third and fourth outputs and being adapted to direct the four signals that it receives respectively on said four outputs,

(c_2) a first store having an input connected to the first output of said selector circuit from which it receives the octet P_i and an output connected to the signal input of the logic function generator,

(c_3) a second store having an input connected to the second output of said selector circuit, from which it receives binary elements forming a validation code, said second store containing as many storage binary cells as there are storage assemblies, said cells each being connected to an output connection, said output being connected to said validation input of one of said random access memories, said memories therefore all being able to be validated in parallel;

(c_4) a third store having an input connected to the fourth output of said selector circuit, from which it receives the address of the octet P_i and having an output connected to the addressing inputs of the storage assemblies,

said storage assemblies, computing circuit and controlling circuit allowing simultaneous access to said plurality of storage assemblies validated in parallel to write therein binary information at a desired address taking into account the information already written at this address according to predetermined functions.

4,424,573

SYSTEM FOR ENTERING A POSTAGE METER SERIAL NUMBER INTO A NONVOLATILE MEMORY FROM AN EXTERNAL CHANNEL AFTER ASSEMBLY OF THE METER

Alton B. Eckert, Jr., Norwalk, and Edward C. Duwel, Trumbull, both of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Feb. 26, 1981, Ser. No. 238,331
Int. Cl.³ G06F *3/00, 15/00*
U.S. Cl. 364—900 **15 Claims**

1. An intercommmunication system for communication between a data center of the type that stores postage meter information and electronic postage meters each of which has a nonvolatile memory wherein the intercommunication system

supplies information for the entering of a serial number into the nonvolatile memory upon completion of assembly of each meter, comprising:

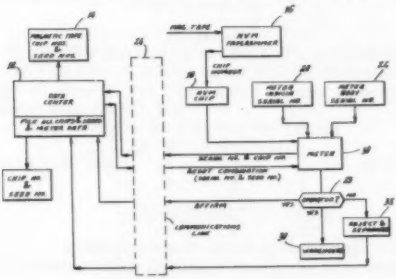
the data center having storage means for storing a chip number and a seed number for each nonvolatile memory to be used in assembly of the electronic postage meters;

first communicating means for communicating the serial number and chip number of each of the assembled meters to said data center;

data center receiving means for receiving the serial numbers and chip numbers;

generating means located within the data center for generating seed numbers associated with said chip numbers;

second communication means for communicating respective



serial numbers and seed numbers to each of the electronic postage meters;

electronic postage meter receiving means located in each postage meter for receiving information from said data center in accordance with its respective serial number and seed number;

means for selectively entering the information from said data center into each electronic postage meter;

means for indicating acceptance of the information by each of the electronic postage meters;

means for writing the serial number in the nonvolatile memory upon acceptance of the information by each electronic postage meter; and

means for preventing further writing into the nonvolatile memory where the serial number is written.

4,424,574

FUNCTION PRESETTING CIRCUIT FOR AN AUDIO/VIDEO RECORDING AND REPRODUCING SYSTEM

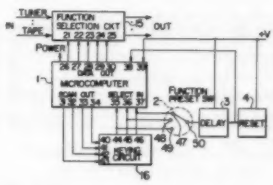
Takashi Enoki; Hiroaki Nakamura, both of Toyokawa, and Fujio Nakashima, Aichi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 25, 1981, Ser. No. 247,264

Claims priority, application Japan, Mar. 26, 1980, 55-37485

Int. Cl.³ G11B *27/36*

U.S. Cl. 364—900 **12 Claims**



1. A function presetting circuit for an audio/video system for at least selecting a function and controlling a selected function unit by a microcomputer having a function keying circuit, comprising;

(a) reset means for providing a reset signal to said microcomputer at a time of power-on to initialize said microcomputer,

(b) a delay circuit having an output of said reset means coupled thereto in parallel with said microcomputer, said delay circuit producing a signal having a presence of a predetermined time duration in response to the reset signal from said reset means, and

(c) function presetting switch means responsive to the signal from said delay circuit to produce a function selection presetting signal during the presence of said signal from said delay circuit, said presetting signal being supplied to an input terminal of said microcomputer,

said microcomputer containing a stored program for allowing execution of a main program said predetermined time period after application of the reset signal and input processing by said presetting signal.

4,424,575

TEXT PROCESSING SYSTEM INCLUDING MEANS TO ASSOCIATE COMMENTARY WITH TEXT

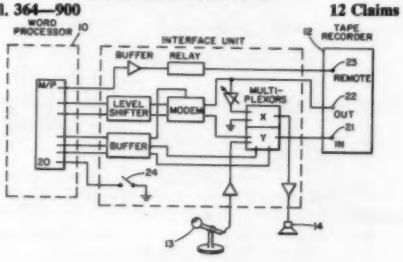
Samuel L. H. Clarke, and Robert W. Inder, both of Chelmsford, England, assignors to The Marconi Company Limited, Chelmsford, England

Filed Oct. 7, 1981, Ser. No. 309,256

Claims priority, application United Kingdom, Oct. 7, 1980, 8032206

Int. Cl.³ G06F *3/06, 3/16*

U.S. Cl. 364—900 **12 Claims**



1. A text processing system operable in two modes, in a first mode audio commentary is recorded and associated with selected portions of displayed text, in a second mode the commentary is played back while the text to which it pertains is recalled to a display, said system comprising:

(a) a word processor including:

(i) a display unit (DU) on which the text is displayed,

(ii) addressable means for storing data including said text,

(iii) input means for selecting the mode of operation,

(iv) a processing unit responsive to said input means for communicating data, including text, between said storage means, the DU and said input means, said processing unit generating digital address information corresponding to the locations in said storing means where said selected text is located, said processing unit including bus means by which the display unit, storing means and interface means can communicate with the processing unit;

(b) recorder means capable of recording and playing back address information and commentary;

(c) means for interfacing said processing unit with the recorder means to permit the processing unit to control recording and playback and to store and retrieve said address information from the recording means such that:

(i) during the first mode the processing unit generates address information to be recorded along with the audio commentary and

(ii) during the second mode the processing unit causes the recorder to play back the recorded address information and commentary, said processing unit retrieving said address information via said interfacing means and utilizing it to display the text to which the commentary pertains;

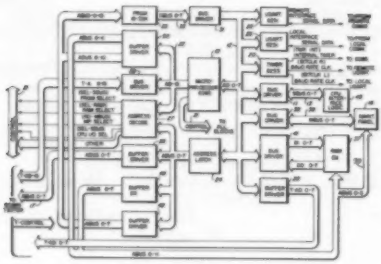
whereby a first user can select text displayed on the DU and record commentary relating thereto and, when desired, the same or a second user can listen to the recorded commentary while having the text to which it pertains displayed on the DU.

4,424,576

MAINTENANCE PANEL FOR COMMUNICATING WITH AN AUTOMATED MAINTENANCE SYSTEM

Ronald E. Lange, Phoenix, and Robert J. Koegel, Glendale, both of Ariz., assignors to Honeywell Information Systems Inc., Phoenix, Ariz.

Filed Sep. 17, 1979, Ser. No. 75,771
Int. Cl.³ G01R 31/28
U.S. Cl. 364—900 6 Claims



1. A maintenance panel apparatus for communicating with an automated maintenance system for testing a preselected unit in a data processing system, said maintenance system including means for transmitting information to and receiving information from said data processing system under test, said apparatus comprising:

(a) a keyboard means for entering address, data, command and control information to be transferred to said automated maintenance system to control the function of said automated maintenance system;

(b) a display means to display address, data, command, and control information entered by said keyboard means for transfer to said automated maintenance system, and for display of address, data, and command information received by said automated maintenance system from said unit of said data processing system under test; and,

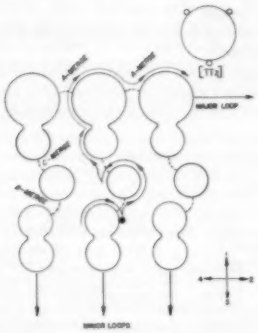
(c) a port means coupled to said keyboard means, to said display means, and to said automated maintenance system for the transfer of address, data, command, and control informtion to said automated maintenance system, and for the transfer of address, data, and command information received by said automated maintenance system from said preselected unit of said data processing system to said display means, said display means including means to display system conditions status information from said automated maintenance system.

4,424,577

CONDUCTORLESS BUBBLE DOMAIN SWITCH

Isoris S. Gergis, Yorba Linda, and Bruce E. MacNeal, Fullerton, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Jul. 21, 1980, Ser. No. 170,462
Int. Cl.³ G11C 19/08
U.S. Cl. 365—36 36 Claims



1. A magnetic bubble domain system comprising:

a planar layer of magnetic material in which magnetic bubble domains can be propagated;

a bubble domain guide structure coupled to said layer for guiding the movement of said bubble domain in said layer; said guide structure being organized into a major loop and a plurality of minor loops suitably positioned for transfer of bubble domains between said major loop and respective ones of said minor loops; and transfer means disposed between said major loop and a respective one of said minor loops for transferring bubble domains therebetween;

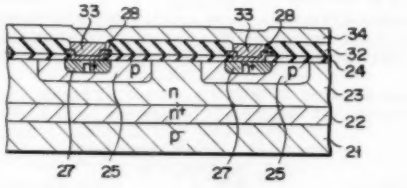
characterized in that said transfer means comprises a contiguous disk pattern element disposed with respect to said major loop and one of said minor loops such that the direction of a bubble domain transfer path between said one minor loop and said major loop is substantially the same direction as one of the crystallographic axes of said planar layer.

4,424,578

BIPOLAR PROM

Junichi Miyamoto, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Jul. 13, 1981, Ser. No. 283,011
Claims priority, application Japan, Jul. 14, 1980, 55-95844
Int. Cl.³ G11C 11/40, 17/00
U.S. Cl. 365—104 11 Claims



1. A semiconductor memory device having a plurality of bipolar transistors each having an emitter region and a base region, said emitter region located in said base region, said base

region forming a bit line, and at least one of said memory cells including:

a. an oxide layer covering said emitter region;

b. a contact hole in said oxide layer extending to said emitter region;

c. a barrier layer in said contact hole contacting said emitter region;

d. a high resistance layer formed on said barrier layer;

e. a metal wiring layer forming a word line and contacting said high resistance layer, wherein said metal wiring layer melts to contact said barrier layer through said high resistance layer, thereby short-circuiting said bit line and word line, when a voltage for writing is applied across said bit line and said word line.

4,424,579

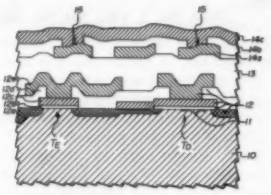
MASK PROGRAMMABLE READ-ONLY MEMORY STACKED ABOVE A SEMICONDUCTOR SUBSTRATE

Bruce B. Roesner, San Diego, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed Feb. 23, 1981, Ser. No. 237,420

Int. Cl.³ G11C *17/06*

U.S. Cl. 365—105 **18 Claims**



1. A mask programmable read-only memory having memory cells stacked above a semiconductor substrate comprised of:

a. address decode means integrated into a surface of said substrate for addressing said cells in said memory;

b. a first insulating layer covering said address decode means and said surface;

c. an array of spaced-apart memory cell select lines on said first insulating layer including:

i. a plurality of spaced-apart semiconductor lines formed on said first insulating layer;

ii. a second insulating layer formed over said semiconductor lines; and

iii. a plurality of spaced-apart metal lines formed over said second insulating layer and arranged orthogonal to said semiconductor lines;

d. outputs from said address decode means respectively coupled through said first insulating layer to said select lines wherein each cell of said memory is formed at an intersection of one of said semiconductor lines and one of said metal lines and further includes a mask selectable Schottky diode at select ones of said intersections representative of the information in said cell.

4,424,580

METHOD AND APPARATUS FOR GENERATING ELECTRON SPIN REVERSAL IN FERRIMAGNETIC MATERIAL

Carl H. Becker, Mountain View, and Werner J. Christmann, Los Altos, both of Calif., assignors to Precision Echo, Santa Clara, Calif.

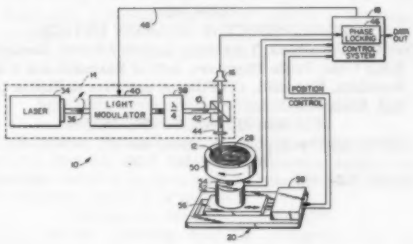
Filed May 6, 1981, Ser. No. 260,963

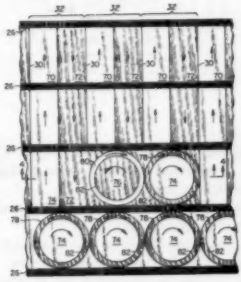
Int. Cl.³ G11C *13/04, 13/06*

U.S. Cl. 365—121 **39 Claims**

1. A method for transforming ferrimagnetic material comprising:

transiently exposing ferrimagnetic thin film with circularly polarized optical radiation of a concentration, power intensity and duration sufficient to induce a change in





intrinsic magnetization but not sufficient to cause irreversible change to said material.

4,424,581

LOGIC CIRCUIT WITH A TEST CAPABILITY

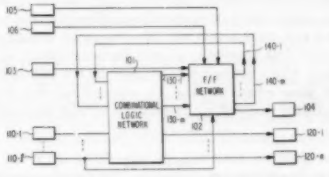
Masato Kawai, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Nov. 24, 1981, Ser. No. 324,707

Claims priority, application Japan, Nov. 25, 1980, 55/166074

Int. Cl.³ G11C *13/00*

U.S. Cl. 365—154 **10 Claims**



1. A logic circuit comprising:

a combinational network for receiving in parallel a bit pattern which comprises at least first and second groups of input signals and for producing a corresponding parallel bit pattern output comprising at least first and second groups of output signals;

a group of master flip-flops for receiving said first group of output signals from said combinational network;

a group of slave flip-flops corresponding to respective ones of said master flip-flops, said slave flip-flops receiving the output bit pattern of said master flip-flops and feeding said master flip-flop output bit pattern back to said combinational network as said first group of input signals;

first means for cascade-connecting said master flip-flops to form a shift register with a feedback loop; and

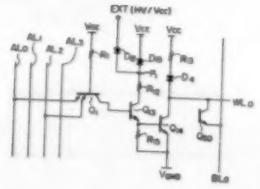
second means for cascade-connecting said slave flip-flops to form a shift register with a feedback loop.

4,424,582

SEMICONDUCTOR MEMORY DEVICE

Toshitaka Fukushima, Yokohama; Kazumi Koyama, Kanagawa; Kouji Ueno; Tamio Miyamura, both of Kawasaki, and Yuichi Kawabata, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Apr. 21, 1980, Ser. No. 141,931
Claims priority, application Japan, Apr. 27, 1979, 54-52125
Int. Cl.³ G11C *7/00*
U.S. Cl. 365—189 **18 Claims**



1. A semiconductor memory device for writing or reading information in selected memory cells in dependence upon a write or read status, comprising:

an address buffer which receives address signals and generates outputs accordingly;

address signal lines, levels of which are set by the outputs of said address buffer, generating outputs;

a decoder circuit for decoding the outputs of said address signal line, said decoder circuit comprising:

a decoding transistor connected to said address signal lines;

a first transistor having a base connected to said decoding transistor, an emitter and a collector;

a second transistor having a base connected to said emitter of said first transistor and an emitter connected to ground, and producing a first current; and

a resistor connected to said collector of said first transistor;

memory cells, connected to said second transistor, which will be rendered selectively conductive or non-conductive in accordance with write information, the conductive or non-conductive state of said memory cells being rendered in dependence upon the first current; and

means, operatively connected to said resistor, for sensing the read and write status and for producing a control current in said first transistor of said decoder circuit of a higher value when writing information into a selected memory cell than when reading, the control current in said first transistor controlling generation of said first current.

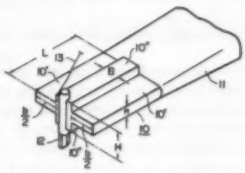
4,424,583

PICKUP CARTRIDGE HAVING A RIBBED CANTILEVER

Masayoshi Uchida, Yokohama, Japan, assignor to Victor Company of Japan, Limited, Yokohama

Filed May 27, 1981, Ser. No. 267,695
Claims priority, application Japan, May 28, 1980, 55-72572[U]
Int. Cl.³ H04R *1/18*
U.S. Cl. 369—126 **5 Claims**

1. A pickup cartridge comprising a cantilever having one end thereof supported by a suspension means and a stylus attached to the free end of said cantilever for detecting signals from disc records, and a connecting wire attached to said stylus for conducting said detected signal to an external circuit, said cantilever being formed with a generally horizontally extending flat portion, said stylus extending at substantially a right angle to the plane of said flat portion, said cantilever being further formed with at least one rib portion extending in a longitudinal direction along said flat portion from said free end of the cantilever to inhibit oscillation of the cantilever at



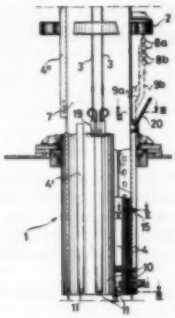
the resonant frequencies of said disc records with which said stylus is in contact.

4,424,584

ELECTRODE HOLDER ASSEMBLY FOR SELF-BAKING ELECTRODES

Knut Evensen, Oslo, Norway, assignor to Elkem a/s, Olso, Norway

Filed Oct. 7, 1981, Ser. No. 309,219
Int. Cl.³ H05B *7/107*
U.S. Cl. 373—97 **15 Claims**



1. An electrode holder assembly for holding an electrode in an electrothermal smelting furnace, said electrode including a casing having ribs projecting radially outwards from the casing, comprising:

(a) a plurality of clamping means, each said clamping means comprising two substantially identical reversed parts being operative to contact said ribs for conducting current into the electrode; and

(b) said clamping means being adapted for slidably clamping only against the ribs of said electrode casing whereby the clamping means impose only tangential forces on the casing of the electrode.

4,424,585

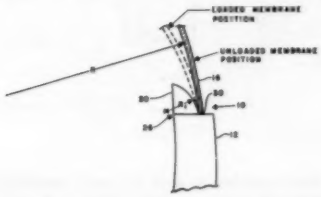
CHEMICAL LASER NOZZLE BLADE SUPPORT SYSTEM

Jimmie D. Wells, Northridge, Calif., and Robert E. DeLand, Fredericktown, Mo., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Nov. 16, 1981, Ser. No. 322,042
Int. Cl.³ H01B *3/095*
U.S. Cl. 372—89 **4 Claims**

1. In a chemical laser having a body and a plurality of nozzle blades, the improvement therein being in the form of a nozzle blade support system, said nozzle blade support system comprising a flexure member, wherein said flexure member has a preselected thickness, t_1 and the relationship between a first

predetermined radius of curvature, R, and a second predetermined radius of curvature, R_1, is defined by the expression $R_1=t/2\ (\epsilon+(t/2R)\ (1+\epsilon)$ wherein ϵ represents the strain of said member due to bending at said radius, R_1, said flexure member being fixedly secured at one end thereof to one end of at least one of said plurality of nozzle blades and being secured at the other end thereof to said laser body, first means on at least said one nozzle blade adjacent said flexure member for supporting said one end of said flexure member, second means on said laser body adjacent said flexure member for supporting said other end of said flexure member, said nozzle blade and said flexure member lying along said first predetermined radius



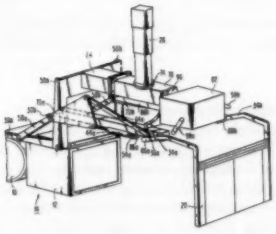
of curvature, R, under a substantially no stress condition, said first and said second support means each being defined by said second predetermined radius of curvature, R_1, said radius, R_1, being substantially less than said radius, R, and means secured between the other end of at least one of said plurality of said nozzle blades and said laser body for supporting said other end of said nozzle blades, whereby upon application of stress to said nozzle blades during laser operation said flexure member bends around said radius of curvature of said first and said second support means and said means for supporting said other end of said nozzle blade bends in such a manner thereby enabling said nozzle blades to act as a hoop member in accommodating said stress applied thereto.

4,424,586

X-RAY EXAMINATION APPARATUS

Winfried Platz, Southington, and Steven J. Plummer, Middlefield, both of Conn., assignors to Siemens Corporation, Iselin, N.J.

Filed Oct. 19, 1981, Ser. No. 312,621
Int. Cl.³ A61B 6/12
U.S. Cl. 378—197 **23 Claims**



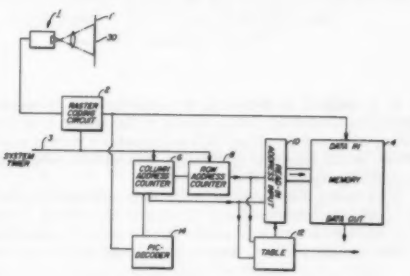
1. In an X-ray apparatus containing:
an X-ray tube;
means for moving said X-ray tube between
a first position in which said X-ray tube is adapted to emit a beam of X-rays in a first direction, and
a second position in which said X-ray tube is adapted to emit a beam of X-rays in a second direction substantially normal to said first direction;
a film cassette tray having a plane in an exposure position to receive said beam of X-rays from said X-ray tube when said X-ray tube is in its second position; and
means operationally connected to said X-ray tube for positioning said film cassette tray in a waiting position outside said beam of X-rays when said X-ray tube is in its first position and for transferring said film cassette tray from said waiting position to said exposure position when said X-ray tube is moved from its first position to its second position.

4,424,587

METHOD AND APPARATUS FOR THE IDENTIFICATION OF ARTICLES

Klaus Wevelsiep, Kriftel; Bernhard Sturm, Schmitten, and Hans Scholze, Dreieich, all of Fed. Rep. of Germany, assignors to Scantron GmbH & Co. Elektronische Lesegerate KG, Frankfurt-Hoechst, Fed. Rep. of Germany

Filed Apr. 13, 1981, Ser. No. 253,475
Claims priority, application Fed. Rep. of Germany, Apr. 16, 1980, 3014513
Int. Cl.³ G06K 9/32
U.S. Cl. 382—44 **12 Claims**



1. In a method for the identification of articles which appear in random positions and orientation and at random times at an image window, said articles having an identification on a surface thereof facing the image window in the form of a data field, said data field comprising contrasting indicia in at least one data track and at least one contrasting line pattern (PIC), said PIC indicating the position and orientation of the data track and containing a plurality of lines with varying spacing and/or line widths, wherein the image window is scanned with an opto-electronic scanner in a sequence of rows to generate a corresponding video signal of the scanned contrasting sequence wherein in a first method step, a search operation, the image window is scanned with a search raster until the contrasting line pattern(s) is (are) cut by several raster scans and recognized, wherein in a second method step, the angle between the data track(s) and the scanning rows of the search raster is determined, and in a third method step, a reading operation, the data field is scanned with a reading raster in the direction of, or perpendicular to, the data track(s), and the symbols contained in the data track(s) are read and fed as said video signal to a decoder for decoding thereof, the improvement to the method comprising:
(a) coding the amplitude of said video signal at successive discrete time points into binary digits which represent light/dark values of the corresponding raster points (x,y) of the data field,
(b) entering the digits serially and in a sequence of rows into a memory matrix, whereby successive memory positions of a memory matrix row correspond to equivalent successive raster points of a scanning row of the data field,
(c) and thereafter sequentially reading out and decoding at a predetermined reading rate mutually overlapping partial regions of the memory matrix, the size of said partial regions corresponding to the size of the format of a symbol and the displacement between successive partial re-

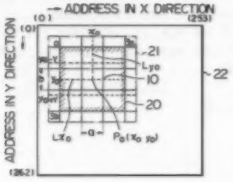
gions being subetantially smaller than the size of the partial regions.

4,424,588

METHOD FOR DETECTING THE POSITION OF A SYMMETRICAL ARTICLE

Takashi Satoh, Kawasaki, and Isamu Shimada, Yokohama, both of Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Aug. 26, 1981, Ser. No. 296,310
Claims priority, application Japan, Aug. 29, 1980, 55-119082
Int. Cl.³ H04N 7/18
U.S. Cl. 382—48 **4 Claims**



1. A method of detecting the position of a symmetrical article by converting image signals of the article in to binary information and detecting with a computer a central position of the article based on said binary information, said method comprising the steps of:

determining a first median point, from said binary information, between two points of intersection of a first straight line intersecting said article and the sides of said article;

determining a second median point, from said binary information, between two points of intersection between a second straight line and the sides of said article, said second straight line passing through said first median point and crossing said first straight line at right angles;

sequentially determining an n'th median point, from said binary information, between two points of intersection between an n'th straight line and the sides of said article, said n'th straight line passing through the preceding (n−1)th median point and crossing the preceding (n−1)th straight line at right angles, where n is an integer greater than or equal to 3; and

performing the detection of the position of the article by using said n'th median point as the central position of the article.

4,424,589

FLAT BED SCANNER SYSTEM AND METHOD

E. Raymond Thomas; Lysle D. Cahill, both of Dayton; William W. Marshall, Xenia; Luke L. Talley, Centerville; John A. Lawson, Dayton, and Brian N. Wilcox, Kettering, all of Ohio, assignors to Coulter Systems Corporation, Bedford, Mass.

Filed Apr. 11, 1980, Ser. No. 139,463
Int. Cl.³ G06K 9/20; H04N 1/10
U.S. Cl. 382—61 **17 Claims**

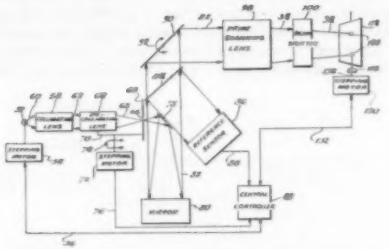
1. For use in an optical scanning system where a beam of light is deflected across a planar original image in a pattern of scan lines by a rotatable raster mirror having a center of rotation at a fixed distance perpendicular from the original image and arranged parallel to the scan lines,

an apparatus for compensating for the differences in rotational changes of the raster mirror required to produce equidistant scan lines on the original image, the apparatus comprising:

stepping motor means for rotating, in response to stepping pulse applied thereto, the raster mirror in incremental angular steps that are much smaller than the angular change requied to deflect the beam of light from scan line to scan line;

memory means containing a plurality of fixed numbers representing the number of stepping pulses to be applied to the stepping motor to rotate the raster mirror the required number of incremental angular steps to step the beam of light from scan line to scan line; and

controller means for applying stepping pulses to the stepping motor in response to the fixed numbers contained in the memory means to rotate the raster mirror and deflect the



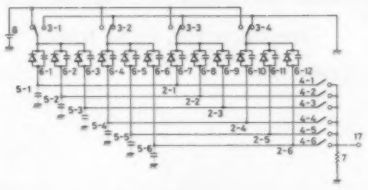
beam from scan line to scan line, said controller means comprising means for selecting different fixed numbers corresponding to different locations of the scan line on the original image, whereby said stepping motor is stepped a different predetermined number of steps corresponding to said plurality of fixed numbers.

4,424,590

DOCUMENT READER

Takashi Ozawa, Kanagawa, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Jun. 10, 1981, Ser. No. 272,236
Claims priority, application Japan, Jun. 25, 1980, 55-85241
Int. Cl.³ G06K 9/00; H04N 3/14
U.S. Cl. 382—68 **5 Claims**



1. A document reader comprising:

a plurality of light-receiving devices divided into a plurality of ordered groups of ordered light-receiving devices;

a plurality of voitage-application switches one of said voltage-application switches being provided for each group of said light-receiving devices, each said voltage-application switch being coupled to a first terminal of each light-receiving device in the corresponding group of light-receiving devices to selectively connect said first terminals to one of a power source and ground;

a plurality of common lines, ones of said common lines connecting second terminals of like order ones of said light-receiving devices among even number-order groups of said light-receiving devices and other ones of said common lines connecting second terminals of like order ones of said light-receiving devices among odd number-order groups of said light-receiving devices; and

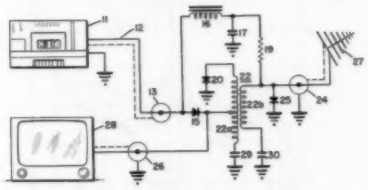
a plurality of reading switches, one of said reading switches being coupled between each of said common lines and an output terminal.

4,424,591

ANTENNA SWITCH FOR HOME VIDEO ACCESSORIES

Allen H. Boardman, Maryville, Tenn., assignor to Magnavox Consumer Electronics Company, Knoxville, Tenn.

Filed Nov. 25, 1981, Ser. No. 324,746
Int. Cl.³ H04B 1/18; H04N 5/22; H01Q 1/50
U.S. Cl. 455—289 9 Claims



6. An antenna switch for supplying first and second signals to a receiver comprising:

a first terminal for receiving said first signal;

a transformer having first and second windings, said first winding connected to receive a signal from said first terminal and coupling said first signal to said second winding;

an output terminal connected to one side of said second winding for delivering a signal to a receiver antenna input terminal;

first shunt means connected in parallel with said first winding comprising a diode, said diode providing a bypass path for said first winding in response to a biasing current;

a second shunt means connected across said second winding, said second shunt means comprising a second diode, which when carrying a biasing current couples a signal applied to the remaining end of said second winding to said output terminal;

means for coupling said second signal to said second winding remaining end comprising a third diode in response to a biasing current, said coupling means including means, in the absence of said biasing current, for establishing a potential on said second remaining end of said winding to permit said first signal to be coupled to said output terminal; and

means for simultaneously biasing said diodes into a conducting state whereby said second signal is coupled to said output terminal.

4,424,592

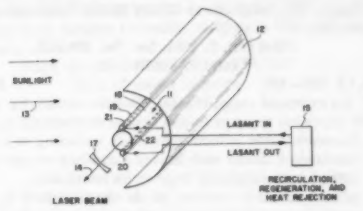
SOLAR PUMPED LASER

Ja H. Lee; Frank Hohl, and Willard R. Weaver, all of Newport News, Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Dec. 4, 1981, Ser. No. 327,658
Int. Cl.³ H01S 3/091, 3/22
U.S. Cl. 372—79 2 Claims

2. A direct solar pumped laser system comprising:

a laser cavity including two mirrors and a chamber having walls transparent to sunlight and filled with a gas lasant $(CF_3)_2AsI$ which can be photodissociated by sunlight to produce lasing;



means for recirculating the gas lasant through the laser cavity; and

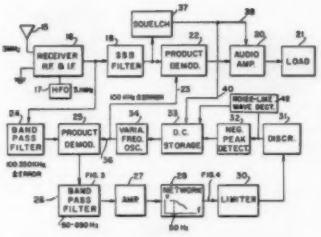
means for collecting sunlight and directing it onto the walls of the chamber to cause the gas lasant to lase.

4,424,593

SUPPRESSED CARRIER COMMUNICATIONS SYSTEM

Leonard R. Kahn, 70 N. Grove St., Freeport, N.Y. 11520

Continuation of Ser. No. 835,115, Sep. 20, 1977, abandoned, which is a continuation-in-part of Ser. No. 706,440, Jul. 19, 1976, abandoned, Ser. No. 563,658, Mar. 31, 1975, abandoned, and Ser. No. 356,493, May 2, 1973, abandoned. This application Sep. 29, 1982, Ser. No. 427,497
Int. Cl.³ H04B 1/68
U.S. Cl. 455—47 16 Claims



1. A communications system subject to frequency translation errors comprising;

a transmitter which produces a modulated wave as a function of an input signal and a receiver which demodulates the received wave to produce an output wave corresponding to said input signal,

said transmitter incorporating filter means which imparts an identifiable frequency response characteristic to the modulated wave,

said receiver incorporating means for sensing frequency translation errors in the received identifiable frequency response characteristic, and,

means for frequency translating received signal components incorporating an oscillator the frequency of which shifts responsive to the translation frequency errors sensing means by an amount and direction to reduce the frequency translation errors in the receiver's output wave.

4,424,594

EXTENDED RANGE TUNABLE RESONANT CIRCUIT FOR A VHF TELEVISION RECEIVER TUNING SYSTEM

Peter C. Skerlos, and Peter Strammello, Jr., both of Arlington Heights, Ill., assignors to Zenith Radio Corporation, Glenview, Ill.

Filed Oct. 5, 1981, Ser. No. 308,018
Int. Cl.³ H04B 1/26
U.S. Cl. 455—180 5 Claims

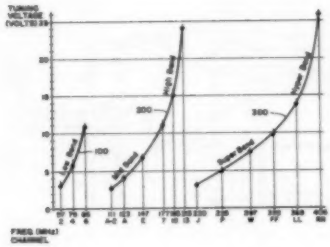
1. An extended range tunable resonant circuit for use in a VHF television receiver tuning system comprising:

a bandswitchable inductive network including at least two bandswitch diodes each having a conductive state characterized by a relatively large series resistance;

a gallium arsenide varactor diode characterized by a relatively low series resistance coupled to said inductive network;

means for applying a variable tuning voltage to said gallium arsenide varactor diode for adjusting the capacitance exhibited thereby within a predetermined range; and

means for selectively controlling the states of said bandswitch diodes for interconnecting said gallium arsenide varactor diode and said inductive network in at least three different circuit configurations, each of said circuit configurations being characterized by a different value of effective inductance and wherein the relatively large series resistance of the bandswitch diodes are at least partially offset by the relatively low series resistance of the gallium arsenide varactor diode for allowing tuning of a respective band of a plurality of respective band of sub-UHF



television channels in response to a variation in said applied tuning voltage, said tuning bands collectively defining an extended sub-UHF tuning range extending from about 54 MHz to at least 408 MHz.

DESIGNS

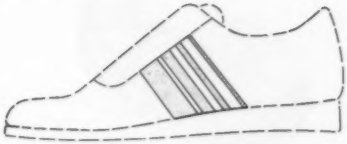
JANUARY 3, 1984

272,009
MOLDED POULTRY STRIP OR SIMILAR ARTICLE
Martin B. P. Zonnenberg, Old Oakwood Rd., Oakwood, Ga. 30566
Filed Oct. 3, 1980, Ser. No. 193,883
Term of patent 14 years
Int. Cl. D01—*01*
U.S. Cl. D1—13

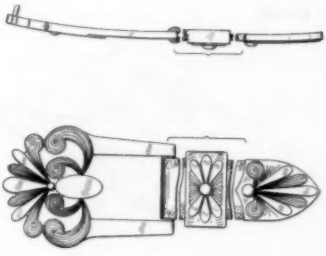
272,010
SWIMMING TRUNKS
Richard L. Rhea, 1872 Woodhollow, Apt. 209, Maryland Heights, Mo. 63043
Division of Ser. No. 879,472, Feb. 21, 1978. This application Dec. 30, 1980, Ser. No. 221,296
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—42

272,011
SKI BOOT
Georges Dehay, 38 Bois de Cange, 27000 Evreux, and Gerard Chalme, 2 rue Andre Chenier, 76420 Bihorel, both of France
Filed Jul. 24, 1981, Ser. No. 286,381
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—276

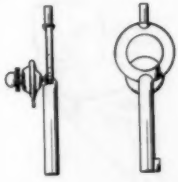
272,012
STRIPES PORTION OF A SHOE UPPER
Jean P. Trevisani, Bogota, Colombia, assignor to Uniroyal, Inc., New York, N.Y.
Filed Apr. 24, 1981, Ser. No. 257,299
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—314



272,013
BELT
Quenton T. Elliott, 3218 Sackett, Houston, Tex. 77098, and Quenton T. Elliott, Jr., 4516 Holt, Bellaire, Tex. 77401
Filed Apr. 9, 1981, Ser. No. 252,375
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—385

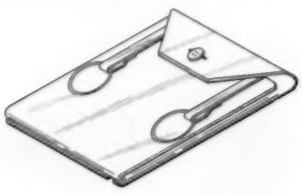


272,014
TIE TACK
William D. Mitcham, Rte. 1, Box 205-F, Hampton, Ga. 30228, and Michael P. Mitcham, Sagamore Lodge, Lee St., Americus, Ga. 31709
Filed Jul. 2, 1981, Ser. No. 279,808
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—420



272,015
INFANT CARRIER
Jeanette S. Black, 2313 Buckingham Rd., Burlington, N.C. 27215
Filed Jun. 11, 1981, Ser. No. 273,498
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D3—31

272,016
COMBINED WALLET AND KEY HOLDER
Saundra G. Blair, 4808 W. Wendover Ave., Greensboro, N.C. 27410
Filed Feb. 12, 1981, Ser. No. 233,797
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—56



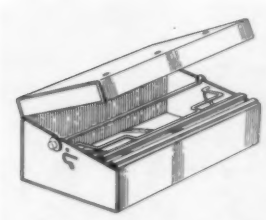
272,017
DEEP-SEA FISHERMAN'S CHAIR
Rogenald J. Keller, 204 N. Minnesota Ave., St. Peter, Minn. 56082
Filed Nov. 5, 1981, Ser. No. 318,335
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—26

272,018
STOOL
Robert V. Thompson, Boatyard Condominiums, 75th Ave. North, Myrtle Beach, S.C. 29577
Filed Apr. 23, 1981, Ser. No. 256,821
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—32

272,019
CHAIR
Laurence E. Morehouse, 910 Tiverton Ave., Los Angeles, Calif. 90024
Filed Jan. 21, 1982, Ser. No. 341,516
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—47

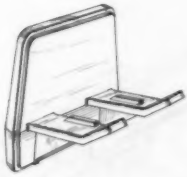
272,020
SPRING BASE CHAIR
Willis A. Baty, Arkadelphia, Ala. 35033
Filed Mar. 23, 1981, Ser. No. 246,847
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—70

272,021
DISPENSER FOR PLASTIC FILM MATERIAL AND THE LIKE
Stanley Ruff, New Rochelle, N.Y., assignor to RGG, Inc., Boston, Mass.
Filed Jun. 10, 1981, Ser. No. 272,298
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D6—96

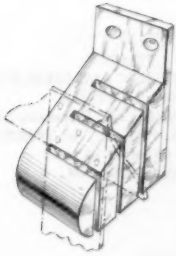


272,022
COMBINED BATHROOM TOWEL SUPPORT AND STORAGE DEVICE
Joseph C. Teague, 334 Avenue "M" West, Ft. Dodge, Iowa 50501
Filed Sep. 10, 1981, Ser. No. 300,794
Term of patent 14 years
Int. Cl. 23—*02*
U.S. Cl. D6—100

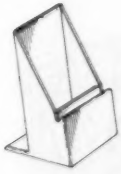
272,023
SUPPORT BRACKET
Joseph B. Mayer, Chicago, and John P. Chap, Lemont, both of Ill., assignors to Selfix, Inc., Chicago, Ill.
Filed Jun. 3, 1981, Ser. No. 266,644
Term of patent 14 years
Int. Cl. D6—*04;* D8—*08*
U.S. Cl. D6—125



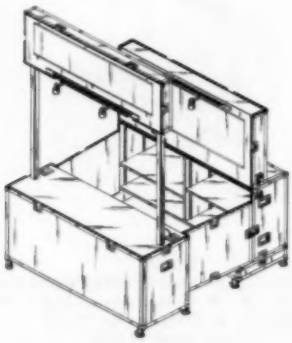
272,024
WALL MOUNTABLE DRAWING IMPLEMENT HOLDER
Tim Basaldua, Jr., 1911 W. Wabansia Ave., Chicago, Ill. 60622
Filed Jun. 15, 1981, Ser. No. 273,659
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—125



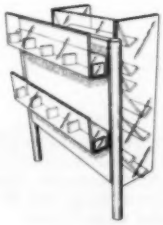
272,025
RECEPTACLE FOR SHEET MATERIAL
Maurice Goutchat, 7 Grande rue, 78850 Thiverval, France
Filed Nov. 12, 1981, Ser. No. 320,633
Claims priority, application France, Jun. 24, 1981, 81 2254
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—180

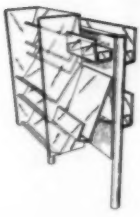


272,026
COLLAPSIBLE DISPLAY BOOTH
Mark H. Bevan, Manhattan Beach, and Garry C. Kief, Los Angeles, both of Calif., assignors to Hastings, Clayton, Tucker & Craig, Inc., Newport Beach, Calif.
Filed Jun. 25, 1981, Ser. No. 277,260
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—186

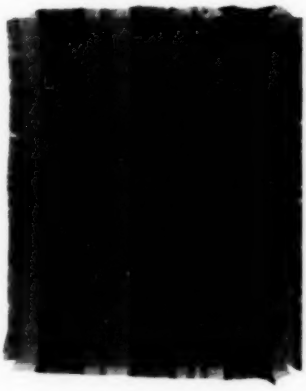


272,027
COMBINED PARTITION AND MERCHANDISE DISPLAY STAND
Bruce E. Hagberg, 670 Weston La., Plymouth, Minn. 55447
Filed Apr. 9, 1981, Ser. No. 252,539
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—190

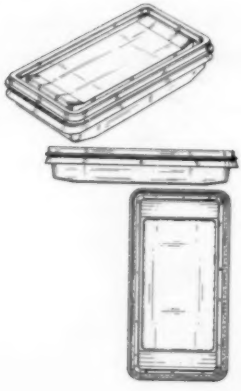




272,028
TEXTILE FABRIC PLACEMAT
Susan E. Dempster, Plano, Tex., assignor to Dempster Corporation, Plano, Tex.
Filed Apr. 1, 1981, Ser. No. 250,086
Term of patent 14 years
Int. Cl. D6—*13*
U.S. Cl. D6—274



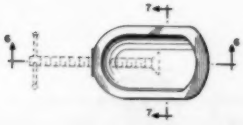
272,029
COVERED FOOD STORAGE CONTAINER
Gerald M. Grusin, Chicago, Ill., assignor to Dart Industries Inc., Northbrook, Ill.
Filed Aug. 20, 1981, Ser. No. 294,720
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—16



272,030
BOWL
Robert W. Sleith, Palmer, Mass., assignor to Suburban Plastics, Incorporated, Three Rivers, Mass.
Filed Jan. 6, 1982, Ser. No. 337,518
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—28

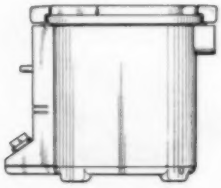
272,031
TRANSFER SURFACE OR THE LIKE FOR CULINARY WARE
Candace M. Faber, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Aug. 3, 1981, Ser. No. 289,261
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—39

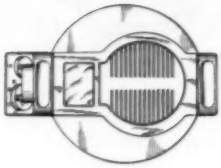
272,032
NUTCRACKER CUP
Melvin E. Shaffer, 603 W. Monroe, Kokomo, Ind. 46901
Filed May 22, 1981, Ser. No. 266,152
Term of patent 14 years
Int. Cl. D07—*06*
U.S. Cl. D7—98



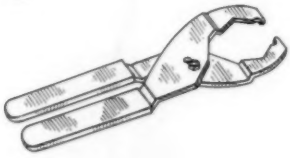
272,033
BABY'S FORK
Marcel Saucier, 391 Abitibi Ave., Malartic, Canada JOY 1Z0
Filed Apr. 9, 1981, Ser. No. 252,469
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D7—141

272,034
DEEP FRYER
Bernard Beugnot, Is sur Tille, France, assignor to SEB, Selongey, France
Filed May 12, 1981, Ser. No. 263,022
Claims priority, application France, Nov. 19, 1980, 803579
Term of patent 14 years
Int. Cl. D07—*02*
U.S. Cl. D7—360



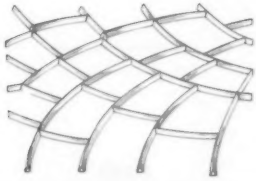


272,035
SLIP JOINT SINK PLUMBING WRENCH
Ansul E. McMillin, 2151-334 Oakland Rd., San Jose, Calif. 95131
Filed Dec. 14, 1981, Ser. No. 330,511
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—22

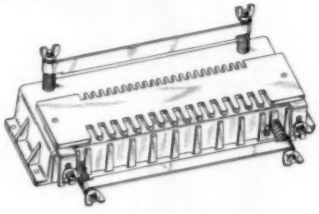


272,036
OPEN END WRENCH
Charles C. Richardson, 1802 Virginia La., Pasadena, Tex. 77502
Filed Apr. 2, 1981, Ser. No. 250,501
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—28

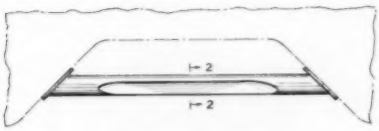
272,037
TOOL FOR IMPRINTING FISH SCALE PATTERNS IN FRESH CONCRETE
John L. Puccini, 432 Upper Lake Rd., Thousand Oaks, Calif. 91361
Filed Jan. 9, 1981, Ser. No. 223,577
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—45



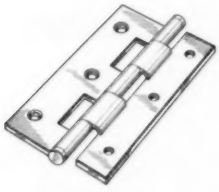
272,038
DOVETAIL TEMPLATE FIXTURE
William C. Dicke, Easley, S.C., assignor to The Singer Company, Stamford, Conn.
Filed Sep. 4, 1981, Ser. No. 299,380
Term of patent 14 years
Int. Cl. D8—*99*
U.S. Cl. D8—71



272,039
GRAB BAR FOR BATHTUBS OR THE LIKE
Henry M. Stairs, Jr., Neshanic, N.J., assignor to American Standard Inc., New York, N.Y.
Division of Ser. No. 169,568, Jul. 17, 1980. This application Mar. 1, 1982, Ser. No. 353,658
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—315

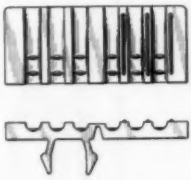


272,040
HINGE
Arthur F. Scanlan, 93 Hall St., Semaphore, South Australia 5019, Australia
Filed Jul. 1, 1981, Ser. No. 279,566
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—327

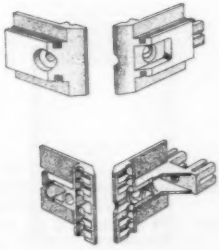


272,041
LOCK UNIT
John M. Harris, West Palm Beach, Fla., by Janet E. Harris, personal representative, 219 2nd Ter., Palm Beach Gardens, Fla. 33410
Filed Feb. 23, 1981, Ser. No. 236,695
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—330

272,042
COMBINED SPACER AND FOLDABLE LOCK FOR WIRES OR THE LIKE
Rudolph E. Muench, Shelby, N.C., assignor to Fasco Controls Corporation, Shelby, N.C.
Filed Sep. 23, 1981, Ser. No. 304,830
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—356



272,043
SEPARABLE CONNECTOR
Thorp C. Cowdroy, Sydney, Australia, assignor to Clive Investments Pty. Limited, Australia
Filed Feb. 13, 1981, Ser. No. 235,302
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—382

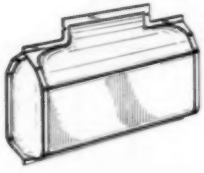


272,044
COMBINED HANDLE AND POSITION FIXATING DEVICE FOR USE WITH A GROUND CLOTH
Thomas E. Fesler, 23132 Via San Gabriel, Mission Viejo, Calif. 92691
Filed May 5, 1981, Ser. No. 260,618
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—390

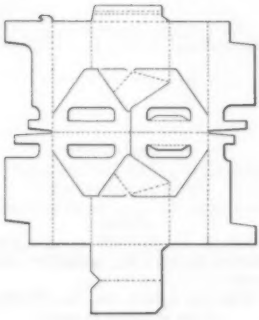
272,045
PRESSURIZED DISPENSING CONTAINER
Erwin W. Parr, Des Moines, Iowa, assignor to Ziphron, Inc., Des Moines, Iowa
Filed Jun. 22, 1981, Ser. No. 271,045
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—300

272,046
DISPENSING CONTAINER FOR DEODORANTS OR THE LIKE
Harley H. Mattheis, Verona, N.J., assignor to Risdon Corporation, Naugatuck, Conn.
Filed Apr. 21, 1980, Ser. No. 141,820
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—377

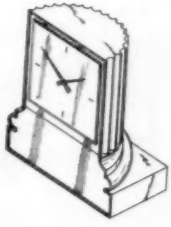
272,047
BAG FOR HOLDING LIQUID
Yotaro Tsutsumi, and Masaomi Ikeda, both of Yokohama, Japan, assignors to Toyo Seikan Kaisha, Ltd., Tokyo, Japan
Filed Apr. 27, 1981, Ser. No. 257,560
Claims priority, application Japan, Oct. 25, 1980, 55-44391; Oct. 25, 1980, 55-44392
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—415



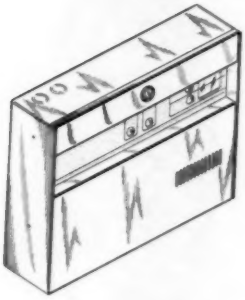
272,048
ARTICLE CARRIER BLANK
James T. Stout, Acworth, Ga., assignor to The Mead Corporation, Dayton, Ohio
Filed Nov. 2, 1981, Ser. No. 317,129
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—433



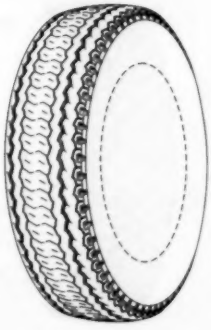
272,049
CLOCK
Giovanni Bulgari, Rome, Italy, assignor to Anthos S.A., Geneva, Switzerland
Filed Oct. 16, 1981, Ser. No. 312,087
Claims priority, application Hague, Apr. 21, 1981, DM/000 705
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—11



272,050
CONTROL UNIT HOUSING FOR AN ELECTRICAL PROTECTION SYSTEM
Terence E. Gibbs, Nyack, N.Y., and Walter Wagner, Dumont, N.J., assignors to American District Telegraph Company, New York, N.Y.
Filed May 26, 1981, Ser. No. 267,076
Term of patent 14 years
Int. Cl. D10—*05*
U.S. Cl. D10—106

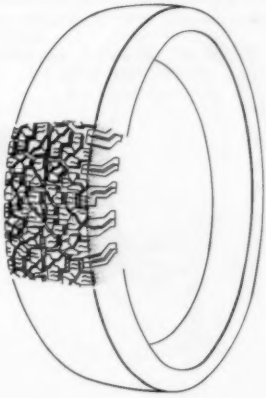


272,051
TIRE TREAD AND BUTTRESS
Donald E. Jackson, Suffield, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Nov. 6, 1981, Ser. No. 318,527
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—142

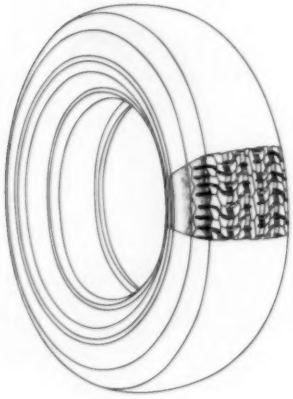


272,052
TIRE TREAD AND BUTTRESS
Donald E. Jackson, Suffield, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Nov. 6, 1981, Ser. No. 318,528
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—142

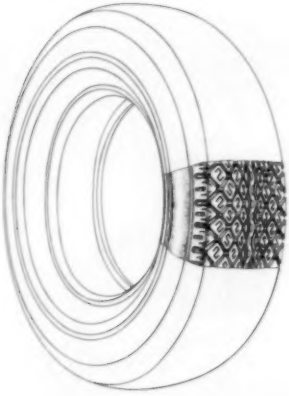
272,053
PNEUMATIC TIRE TREAD AND BUTTRESS
Gerassimos C. Candiliotis, Grosse Pointe Farms, Mich., assignor to Uniroyal Inc., New York, N.Y.
Division of Ser. No. 230,083, Jan. 30, 1981. This application Mar. 25, 1983, Ser. No. 478,972
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—146



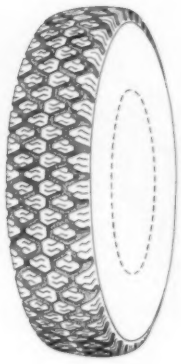
272,054
TIRE
Jean-Philippe Gorez, Greenville, S.C., assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France
Filed Jan. 5, 1982, Ser. No. 337,306
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—147



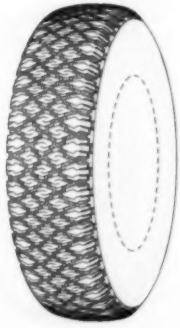
272,055
TIRE
Jean-Philippe Gorez, Greenville, S.C., assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France
Filed Jan. 5, 1982, Ser. No. 337,308
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—147



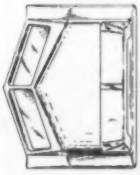
272,056
TIRE TREAD AND BUTTRESS
Fernand J. Blau, Colmar-Berg, Luxembourg, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Nov. 6, 1981, Ser. No. 319,004
Claims priority, application Luxembourg, May 18, 1981, 30297-00
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—151

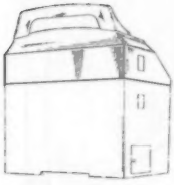


272,057
TIRE TREAD AND BUTTRESS
Andre E. J. Baus, Bettembourg, Luxembourg, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Feb. 8, 1982, Ser. No. 346,102
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—151

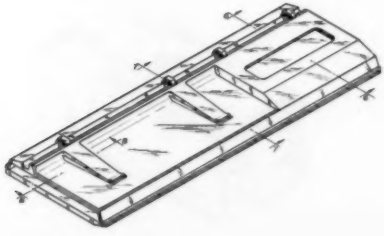


272,058
COMBINED TRUCK CAB ROOF AND DEFLECTOR
Timothy J. Kangas, Issaquah, Wash., assignor to PACCAR Inc., Bellevue, Wash.
Division of Ser. No. 87,244, Oct. 22, 1979. This application Mar. 25, 1982, Ser. No. 361,724
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—156

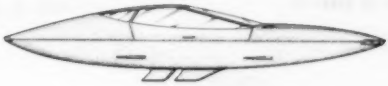


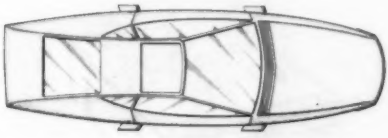


272,059
ARTICLE STORAGE UNIT FOR A VEHICLE SUNVISOR
Ted A. Bell, and Daniel F. Lehner, both of Coshocton, Ohio, assignors to Pretty Products, Inc., Coshocton, Ohio
Filed Jul. 13, 1981, Ser. No. 282,529
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—191

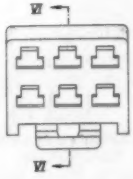


272,060
BOAT
Fred A. Tremiti, Jr., 4653 Vanalden Ave., Tarzana, Calif. 91356
Filed Apr. 13, 1981, Ser. No. 253,251
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D12—315

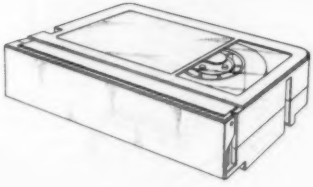




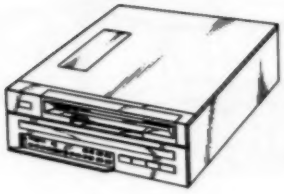
272,061
CONNECTOR HOUSING
Yasuharu Moriai, Suzuka; Yoshio Ito, Yokkaichi, and Atsushi Sakatani, Matsusaka, all of Japan, assignors to Tokai Electric Wire Co., Ltd., Yokkaichi, Japan
Filed Dec. 3, 1981, Ser. No. 327,100
Claims priority, application Japan, Aug. 31, 1981, 56-38421
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—24



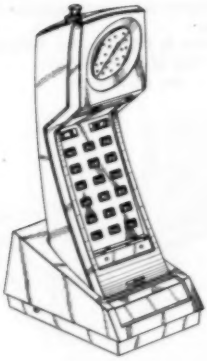
272,062
VIDEO TAPE CASSETTE
Masamitsu Shibata, Matsudo, and Haruki Ogata, Sagamihara, both of Japan, assignors to Victor Company of Japan Limited, Yokohama, Japan
Filed Aug. 4, 1981, Ser. No. 289,976
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—11



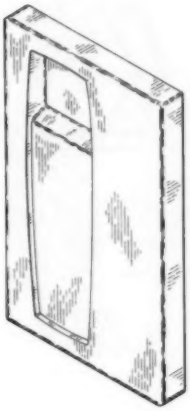
272,063
DIGITAL AUDIO DISCS PLAYER
Kenji Ekuan, Tokyo, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Japan
Filed May 12, 1981, Ser. No. 262,985
Claims priority, application Japan, Nov. 13, 1980, 55-47436
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—14



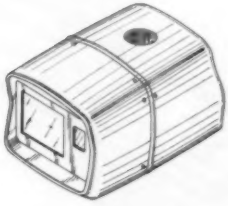
272,064
COMBINED TELEPHONE HANDSET AND BASE THEREFORE
John C. Coons, and Jean M. Beirise, both of Cincinnati, Ohio, assignors to Masco Corporation of Indiana, Taylor, Mich.
Filed May 1, 1981, Ser. No. 259,617
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—53



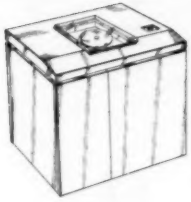
272,065
WALL TELEPHONE BASE HOUSING
George M. Janda, Wheaton, Ill., assignor to GTE Automatic Electric Labs Inc., Northlake, Ill.
Filed Oct. 1, 1981, Ser. No. 307,477
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—61



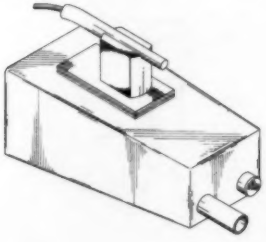
272,066
CHAIR MOUNTED TELEVISION HOUSING
Reid S. Larsen, Bountiful, Utah, assignor to Midwest International, Inc., Salt Lake City, Utah
Filed Mar. 23, 1981, Ser. No. 246,208
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—77



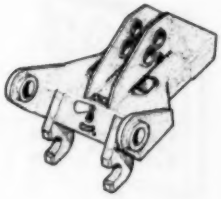
272,067
PICTURE IMAGE MEMORY UNIT
Kunio Hara, Chiba, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed Mar. 13, 1981, Ser. No. 243,605
Claims priority, application Japan, Sep. 17, 1980, 55-38064
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—107



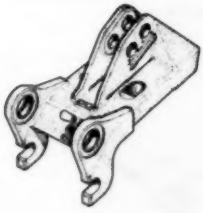
272,068
COMBINED VIBRATOR AND HOPPER FOR A MORTAR APPLYING MACHINE
Norris Price, 953 A Main St., Church Hill, Tenn. 37642
Filed Aug. 27, 1980, Ser. No. 181,792
Term of patent 14 years
Int. Cl. D15—*04*
U.S. Cl. D15—13



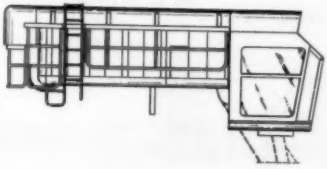
272,069
QUICK HITCH FOR EARTH HANDLING TOOLS
Torsten Larsson, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden
Filed Oct. 26, 1981, Ser. No. 315,117
Claims priority, application Sweden, Apr. 27, 1981, 81-1038
Term of patent 14 years
Int. Cl. D15—*03*
U.S. Cl. D15—28



272,070
QUICK HITCH FOR EARTH HANDLING TOOLS
Torsten Larsson, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden
Filed Oct. 26, 1981, Ser. No. 315,118
Claims priority, application Sweden, May 12, 1981, 81-1136
Term of patent 14 years
Int. Cl. D15—*03*
U.S. Cl. D15—28



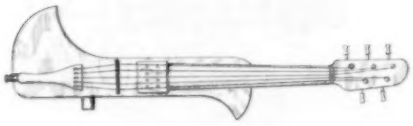
272,071
COMBINED CAB AND BODY FOR AN EARTH-MOVING AND HANDLING MACHINE
Daniel Baconet, Stains; Jacques Leguay, Trilport, and Jean-Yves Morizur, Compiegne, all of France, assignors to Poclain, Societe Anonyme francaise, France
Filed Sep. 19, 1980, Ser. No. 188,696
Claims priority, application France, Mar. 20, 1980, 80 0897
Term of patent 14 years
Int. Cl. D15—*04*
U.S. Cl. D15—30



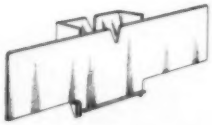
272,072
PHOTOGRAPHIC CAMERA OR SIMILAR ARTICLE
Diane B. Ainslie, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Division of Ser. No. 26,153, Apr. 2, 1979, Pat. No. Des. 263,477.
This application Sep. 10, 1981, Ser. No. 300,831
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D16—1

272,073
SOFT CONTACT LENS REMOVING DEVICE
Delma M. Cointment, 914 Pontalba St., New Orleans, La. 70124
Filed Sep. 25, 1981, Ser. No. 305,750
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D16—124

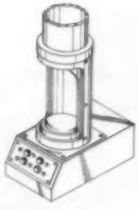
272,074
ELECTRIC VIOLIN
Richard B. Saidat, St. Charles, Ill., assignor to Fischer Industries, Inc., Geneva, Ill.
Filed Mar. 27, 1981, Ser. No. 248,292
Term of patent 14 years
Int. Cl. D17—*03*
U.S. Cl. D17—17



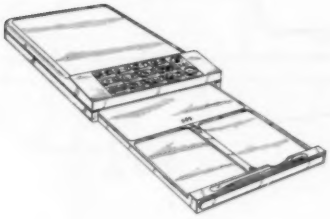
272,075
COMBINED PAPER GUIDE AND WORK TABLE FOR TYPEWRITER
Gregg Martell, 8644 Cavel St., Downey, Calif. 90242
Filed Nov. 24, 1981, Ser. No. 324,589
Term of patent 14 years
Int. Cl. D18—*99*
U.S. Cl. D18—12



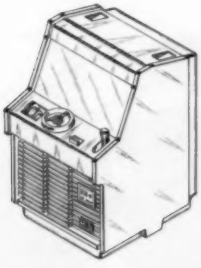
272,076
COUNTER TOP PNEUMATIC CONVEYOR TERMINAL
Harold R. Greene, 2617 Tarba Dr., Dallas, Tex. 75229
Filed May 18, 1981, Ser. No. 265,024
Term of patent 14 years
Int. Cl. D12—*05*
U.S. Cl. D18—35



272,077
TELEPHONE INDEX
Hans Halm, Herne, Fed. Rep. of Germany, assignor to Confon AG, Rheineck, Switzerland
Filed Mar. 6, 1981, Ser. No. 241,365
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D19—76



272,078
HAND HOLDABLE HOUSING FOR GAME
Katsumi Sato, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Japan
Filed Jan. 8, 1982, Ser. No. 337,922
Claims priority, application Japan, Dec. 5, 1981, 56/53922
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—13



272,079
GAME BOARD
David G. de Keller, c/o The East India & Sports Club, 16, St. James's Sq., London SW1, England
Filed Dec. 15, 1980, Ser. No. 216,563
Claims priority, application United Kingdom, Jun. 24, 1980, 995427
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—40

272,080
FISHING LURE
Carl T. Jablonski, deceased, late of Mentor, Ohio by Bertha O. Jablonski, executor, 7257 Farnham Dr., Mentor, Ohio 44060
Filed Sep. 18, 1981, Ser. No. 303,632
Term of patent 14 years
Int. Cl. D22—*27*
U.S. Cl. D22—27

272,081

TRIGGER SPRAYER

John I. Suhajda; Robert E. Corba; Richard L. Davenport, and Allen D. Miller, all of Racine, Wis., assignors to S. C. Johnson & Son, Inc., Racine, Wis.

Filed Oct. 26, 1981, Ser. No. 314,893

Term of patent 14 years

Int. Cl. D23—*01*

U.S. Cl. D23—17

272,082

COMBINED ESCUTCHEON AND DIVERTER VALVE CONTROL FOR BATHTUB/SHOWER UNITS

Wolfgang Fabian, Mannheim, Fed. Rep. of Germany, assignor to American Standard Inc., New York, N.Y.

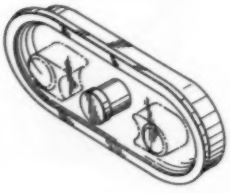
Division of Ser. No. 92,874, Nov. 9, 1979. This application May 14, 1982, Ser. No. 378,362

Claims priority, application Fed. Rep. of Germany, Jun. 13, 1979, 79/3

Term of patent 14 years

Int. Cl. D23—*01*

U.S. Cl. D23—26



272,083

CASSETTE FOR A SEWERLESS TOILET

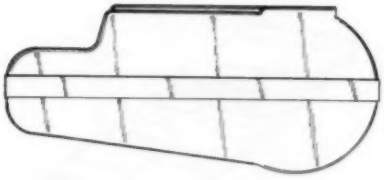
William R. Bocchini, Wyckoff, and Brian Wilcockson, Long Beach Island, both of N.J., assignors to American Standard Inc., New York, N.Y.

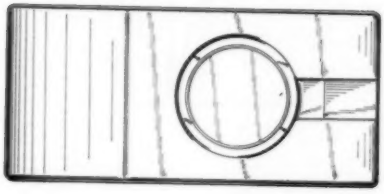
Filed Nov. 12, 1981, Ser. No. 320,270

Term of patent 14 years

Int. Cl. D23—*02*

U.S. Cl. D23—48





272,084

FIREPLACE INSERT OR THE LIKE

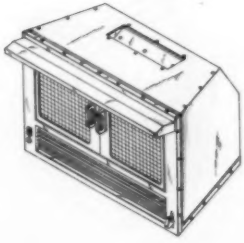
George K. MacAleese, and Lon B. Leech, both of Huntington, Ind., assignors to American Standard Inc., New York, N.Y.

Filed Feb. 1, 1982, Ser. No. 344,699

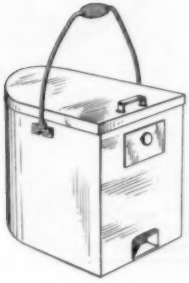
Term of patent 14 years

Int. Cl. D23—*03*

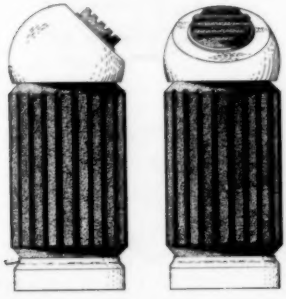
U.S. Cl. D23—94



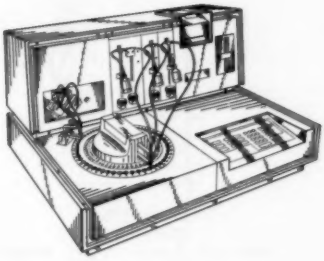
272,085
DUSTLESS ASH CONTAINER OR SIMILAR ARTICLE
Deo A. Rhoades, and Betty L. Rhoades, both of Rte. 1, Grand Junction, Mich. 49056
Filed Oct. 30, 1980, Ser. No. 202,163
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—131



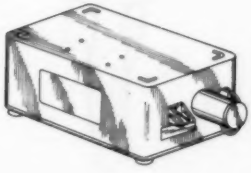
272,086
COMBINED AIR IONIZER AND CLEANER
Stephen J. S. Gehlke, Berkeley, Calif., assignor to Ion Systems, Inc., Berkeley, Calif.
Filed Jul. 10, 1981, Ser. No. 282,038
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—149



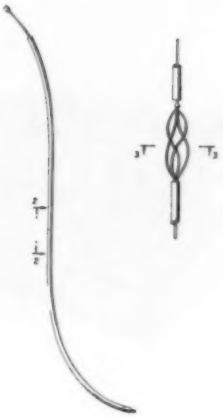
272,087
CLINICAL CHEMISTRY ANALYZER
Robert M. Smith, Copley, Ohio, assignor to Corning Glass Works, Corning, N.Y.
Filed May 20, 1981, Ser. No. 265,670
Term of patent 14 years
Int. Cl. D24—*01;* D10—*04*
U.S. Cl. D24—1.1



272,088
PORTABLE LABORATORY MIXER
Sanford L. Simons, 9188 S. Turkey Creek Rd., Morrison, Colo. 80465
Filed Mar. 16, 1981, Ser. No. 243,755
Term of patent 14 years
Int. Cl. D24—*02;* D15—*05*
U.S. Cl. D24—8

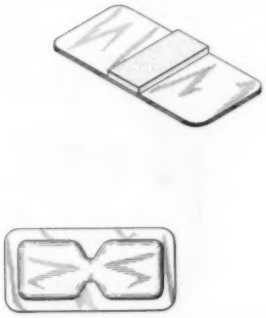


272,089
SURGICAL INSTRUMENT
Jacob A. Glassman, 1680 Michigan Ave., Miami Beach, Fla. 33139
Filed Feb. 17, 1981, Ser. No. 234,808
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—26

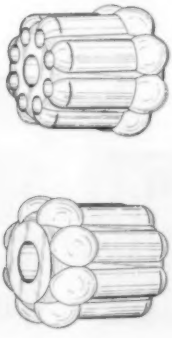


272,090
MASSAGE DEVICE
Jack B. Hosid, 7224 W. Genesee St., Fayetteville, N.Y. 13066
Filed Jun. 19, 1981, Ser. No. 275,414
Term of patent 14 years
Int. Cl. D28—*03;* D24—*99*
U.S. Cl. D24—36

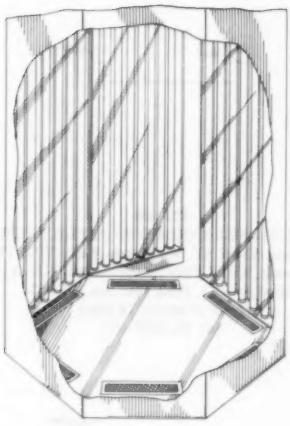
272,091
DISPOSABLE SWAB APPLICATOR PACKAGE WITH STANDBY RESERVOIR
Jack W. Kaufman, 357 Frankel Blvd., Merrick, N.Y. 11566
Filed Mar. 23, 1981, Ser. No. 246,379
Term of patent 14 years
Int. Cl. D24—*02;* D9—*04*
U.S. Cl. D24—34



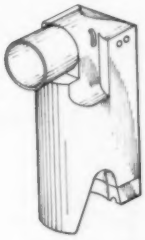
272,092
CHIROPRACTIC BODY MASSAGER
Teruo Masuda, Itsukaichi, Japan, assignor to France Bed Co., Ltd., Tokyo, Japan
Filed Oct. 14, 1981, Ser. No. 311,245
Term of patent 14 years
Int. Cl. D28—*03;* D24—*99*
U.S. Cl. D24—36



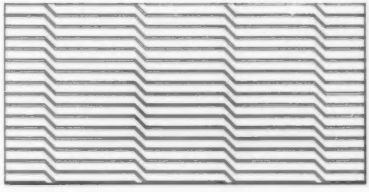
272,093
HEXAGONAL SUNTANNING BOOTH INTERIOR
Errol R. Fish, P.O. Box 4840, Mesa, Ariz. 85201
Filed Dec. 24, 1980, Ser. No. 220,014
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D24—39



272,094
PRESSURIZED MEDICAMENT DISPENSER AND MONITOR
James L. Wolf, Golden, and Daniel V. Sallis, Littleton, both of Colo., assignors to Advanced Technology Products, Inc., Lakewood, Colo.
Filed May 26, 1981, Ser. No. 266,831
Term of patent 14 years
Int. Cl. 24—*04*
U.S. Cl. D24—62



272,095
WALL PANEL
Jose Varela, 1725 W. 33rd Pl., Hialeah, Fla. 33012
Filed Dec. 17, 1981, Ser. No. 331,568
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—80



272,096
COMPACT FLUORESCENT LAMP
Masumi Nanba, Funabashi, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Japan
Filed Dec. 23, 1981, Ser. No. 333,895
Term of patent 14 years
Int. Cl. D26—*04*
U.S. Cl. D26—3

272,097

COMPACT FLUORESCENT LAMP

Masumi Nanba, Funabashi, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Dec. 23, 1981, Ser. No. 333,905

Claims priority, application Japan, Dec. 15, 1980, 55-51984

Term of patent 14 years

Int. Cl. D26—*04*

U.S. Cl. D26—3

272,098

FLUORESCENT LAMP OR THE LIKE

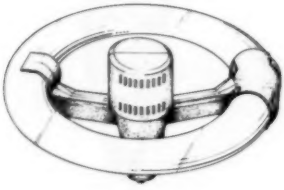
Thomas Haraden, Ipswich, and Harold L. Hough, Beverly, both of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Dec. 11, 1981, Ser. No. 329,910

Term of patent 14 years

Int. Cl. D26—*04*

U.S. Cl. D26—3



272,099

COSMETIC APPLICATOR

Henry J. Cassai, 95-15 107 St., Ozone Park, N.Y. 11416

Filed Dec. 15, 1981, Ser. No. 330,930

Term of patent 14 years

Int. Cl. D28—*03*

U.S. Cl. D28—7

272,100

ADJUSTABLE COSMETIC APPLICATOR

Henry J. Cassai, 95-15 107 St., Ozone Park, N.Y. 11416, and Gino H. Cassai, 924 E. 96th St., Brooklyn, N.Y. 11236

Filed Jan. 21, 1982, Ser. No. 341,365

Term of patent 14 years

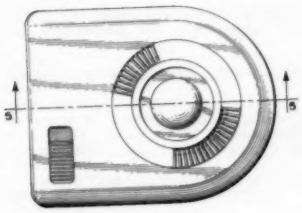
Int. Cl. D28—*03*

U.S. Cl. D28—7

272,101
HAIR DRYER

Noboru Abe, Suita, Japan, and Florian Seiffert, Grüenwald, Fed. Rep. of Germany, assignors to Matsushita Electric Works, Ltd., Osaka, Japan

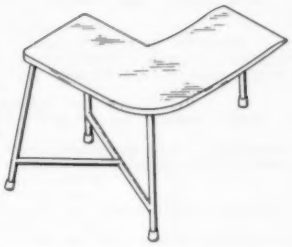
Filed Jan. 11, 1982, Ser. No. 338,663
Claims priority, application Japan, Jul. 29, 1981, 56-33668
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—12



272,102
SLIDE FOR TRANSFERRING INVALID BETWEEN WHEEL CHAIR AND AUTO SEAT

Alfred Olivan, 26658 Peterman Ave., Hayward, Calif. 94545

Filed Sep. 8, 1981, Ser. No. 300,062
Term of patent 14 years
Int. Cl. D12—*05*
U.S. Cl. D34—32



272,103
GIFT WRAPPING PAPER

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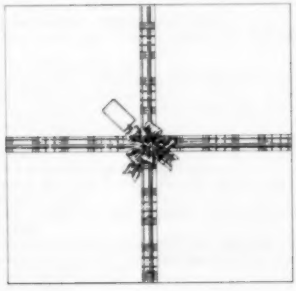

LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 3RD DAY OF JANUARY, 1984

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Audeh, Costandi A., to Mobil Oil Corporation. Process for removal of alkyl lead impurities from liquid hydrocarbons. 4,424,120, Cl. 208-253.000.

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Battershell, Robert D.: *See*—
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Baugarten, Gerd D., to Heinrich Baumgarten KG Eisen-und Blechwarenfabrik. Steam pressure cooking pot. 4,423,825, Cl. 220-316.000.
Baugh, Ronald D.: *See*—
Dadiras, Nickiforos G.; and Baugh, Ronald D., 4,423,983, Cl. 405-195.000.
Bauman, Richard H. Energized-fluid machine. 4,424,013, Cl. 418-48.000.
Baumann, Hans; and Grychtol, Klaus, to BASF Aktiengesellschaft. 1:2 Chromium complex dyes containing sulfonic acid groups. 4,424,153, Cl. 260-149.000.
Baxter Travenol Laboratories, Inc.: *See*—
Maijer, Rolf; and Starck, James U., 4,424,029, Cl. 433-3.000.
Bayer Aktiengesellschaft: *See*—
Colln, Reimer; Gallenkamp, Bernd; and Diehr, Hans-Joachim, 4,424,168, Cl. 260-465.00D.
Giesecke, Heinz, 4,424,349, Cl. 542-417.000.
Hagedorn, Ferdinand; and Evertz, Werner, 4,424,360, Cl. 548-257.000.
Hamprecht, Rainer; and Leverenz, Klaus, 4,424,156, Cl. 260-205.000.
Hederich, Volker; and Gehrke, Gunter, 4,424,160, Cl. 260-380.000.
Hentschel, Karl-Heinz; and Dhein, Rolf, 4,424,400, Cl. 585-20.000.
Idel, Karsten; Ostlinning, Edgar; Freitag, Dieter; and Bottenbruch, Ludwig, 4,424,339, Cl. 528-388.000.
Maurer, Fritz; Priesnitz, Uwe; and Riebel, Hans-Jochem, 4,424,166, Cl. 260-464.000.
Mennicke, Winfried; and Goebel, Hermann, 4,424,152, Cl. 260-148.000.
Meyer, Rolf-Volker; Kreuder, Hans-Joachim; and Hohlein, Peter, 4,424,313, Cl. 525-438.000.
Meyer, Rolf-Volker; Kreuder, Hans J.; and de Cleur, Eckhard, 4,424,353, Cl. 544-253.000.
Oeckl, Siegfried, 4,424,167, Cl. 260-465.00G.
Beall, Clifford H.: *See*—
Mullins, Albert A.; and Beall, Clifford H., 4,423,777, Cl. 166-120.000.
Bearden, Roby, Jr.; Baird, William C., Jr.; and Aldridge, Clyde L., to Exxon Research and Engineering Co. Hydroconversion process. 4,424,110, Cl. 208-10.000.
Beck, William H., to Garrett Corporation, The. Flywheel assisted electro-mechanical drive system. 4,423,794, Cl. 180-165.000.
Becker Carl H.; and Christmann, Werner J., to Precision Echo. Method and apparatus for generating electron spin reversal in ferrimagnetic material. 4,424,580, Cl. 365-121.000.
Beecham Group Limited: *See*—
Tedder, John M., 4,424,361, Cl. 548-259.000.
Bege, Dietmar; Faust, Hans-Joachim; Puthawala, Anwer; and Stunkel, Helmut, to Kraftwerk Union Aktiengesellschaft. Method for ultimate disposition of borate containing radioactive wastes by vitrification. 4,424,149, Cl. 252-629.000.
Behl, Leonard I. Flotation device. 4,424,043, Cl. 441-81.000.
Behr, Karl-Gunther; and Junker, Werner, to Minox G.m.b.H. Reader for microfiches with a display for image-field coordinates. 4,423,933, Cl. 353-27.00R.
Beier, Rudolf: *See*—
Welschof, Hans-Heinrich; and Beier, Rudolf, 4,424,047, Cl. 464-145.000.
Belanger, Patrice C.; Williams, Haydn W. R.; and Rokach, Joshua, to Merck & Co., Inc. Resolution of substituted dibenzo[b,f]thiepin-3-carboxylic acid-5-oxides with brucine or ephedrine. 4,424,355, Cl. 546-35.000.
Belko, Robert P.: *See*—
Sprecker, Mark A.; Klemarczyk, Philip T.; and Belko, Robert P., 4,424,379, Cl. 568-446.000.
Bell, Lon E.; and Gruber, William P., to Technar, Inc. Thermostatically controlled electric diesel fuel heater. 4,424,422, Cl. 219-205.000.
Bell Telephone Laboratories, Incorporated: *See*—
Abys, Joseph A., 4,424,241, Cl. 427-443.100.
Brown, James M., 4,424,479, Cl. 324-52.000.
Chang, Gee-Kung; El Hamamsy, Mahmoud A.; Hartman, Adrian R.; and Lorimor, Orval G., 4,424,544, Cl. 361-56.000.
Howarth, Louis E., 4,424,174, Cl. 264-1.500.
Larson, Allen L., 4,424,565, Cl. 364-200.000.
Moore, George E.; and Muehter, Vincent A., 4,424,418, Cl. 179-18.0BC.
Bellus, Daniel: *See*—
Zweifel, Hans; Schilling, Walter; Storni, Angelo; and Bellus, Daniel, 4,424,366, Cl. 548-431.000.
Beloit Corporation: *See*—
Karis, Arthur T., 4,423,995, Cl. 414-43.000.
Ben Clements & Sons, Inc.: *See*—
Clements, Alan, 4,423,837, Cl. 227-67.000.
Bendix Corporation, The: *See*—
Gongwer, Calvin A., 4,424,042, Cl. 440-44.000.
Hillis, Frank M., 4,423,919, Cl. 339-143.00R.
Benecke, Herman P., to Vinoxen Company, Inc., The. Azelaaldehydates as psychotropic agents. 4,424,202, Cl. 424-10.000.
Benko, Pal; Kovanyi, Gyorgyi nee Lax; Timar, Judit nee Gergely; Sigmond, Maria nee Lakatos; Petocz, Lujza; Gorog, Peter; Koszczky, Ibolya; Szirt, Eniko nee Kiszelly; and Toncsev, Hristone, to Egyt Gyogyszervegyeszeti Gyar. Pyrido[3,4-e]-as-triazines. 4,424,351, Cl. 542-439.000.
Benzoni, Josette: *See*—
Deraedt, Roger; Torelli, Vesperto; Vacher, Jean; and Benzoni, Josette, 4,424,218, Cl. 424-238.000.
Berger, Richard M., to American Filtrona Corporation. Tobacco smoke filter contoured to provide undiluted air flow and method and apparatus for manufacturing same. 4,423,744, Cl. 131-336.000.
Berger, Robert: *See*—
Preston, Seaton T.; Greenwald, Frank L.; Eich, William D.; and Berger, Robert, 4,423,945, Cl. 354-313.000.
Bergstresser, Jim K.: *See*—
O'Brien, Lawrence B.; Winston, Walter F.; Abner, Edmund L.; Atkinson, Lowell G.; Roudebush, H. Richard; Buehler, William L.; Bergstresser, Jim K.; and Messick, Walker A., 4,424,011, Cl. 417-477.000.
Beringer Co., Inc.: *See*—
Days, Frank, 4,424,080, Cl. 134-5.000.
Bernard, Georges; Olive, Serge; and Scarponi, Francesco, to Merlin Gerin S.A. Permanent magnet rotating arc switch. 4,424,428, Cl. 200-147.00A.
Bernhardt, David L., to N.C. Securities Holding, Inc. Process for producing a rotary drilling bit. 4,423,646, Cl. 76-108.00R.
Bernhardt, Karl-Heinz; and Strzala, Helmut, to Arthur Pfeiffer Vakuumtechnik Wetzlar GmbH. Vacuum condensation apparatus. 4,423,766, Cl. 165-13.000.
Berry, Gaylord L.: *See*—
Mather, Frank W., III; Preussner, Andreas; and Berry, Gaylord L., 4,424,190, Cl. 422-46.000.

Bert, Alain, to Thomson-CSF. Radio power distributor and radio equipment using such a distributor, particularly in the solid state. 4,424,495, Cl. 330-286.000.

Berwick, Martin A.; Contois, Lawrence E.; and Reynolds, George A., to Eastman Kodak Company. Pyrylium- and thiopyrylium-sensitized low-persistence photoconductive compositions and elements. 4,424,268, Cl. 430-83.000.

Best, David W., to Rockwell International Corporation. Apparatus and method for providing a logical exclusive OR/exclusive NOR function. 4,424,460, Cl. 307-471.000.

Bethlehem Steel Corporation: *See*—
Plante, Arcade J., 4,423,636, Cl. 73-622.000.
Sucato, Justin F., 4,424,000, Cl. 414-780.000.

Bey, Alvin E., to Dow Corning Corporation. Colloidal silesquioxanes. 4,424,297, Cl. 524-714.000.

Bieringer, Robert J.; and Lovalenti, Sam, to Owens-Illinois, Inc. Method and apparatus for inspecting glass containers. 4,424,441, Cl. 250-223.00B.

Biollaz, Michel, to Ciba-Geigy Corporation. Process for the synthesis of the hydroxyacetyl side-chain of steroids of the pregnane type, novel 21-hydroxy-20-oxo-17α-pregnane compounds and pharmaceutical preparations containing them. 4,424,159, Cl. 260-239.500.

BioResearch Inc.: *See*—
Kurtz, Leonard D.; and LiCausi, Joseph, 4,424,053, Cl. 604-4.000.

Bishop, Alva J. Automatic contact ink stamping apparatus. 4,423,680, Cl. 101-318.000.

Bizerba-Werke, Wilhelm Kraut GmbH & Co. KG: *See*—
Jetter, Hans, 4,423,640, Cl. 73-862.650.

Black, John G.: *See*—
Alderson, Susan G.; Barratt, Martin D.; and Black, John G., 4,424,234, Cl. 424-317.000.

Black, John W.; Shupe, Richard D.; and Simon, Earl, to Pemco-Kalamazoo, Inc. Apparatus for injection molding. 4,424,015, Cl. 425-138.000.

Blechman, Abraham: *See*—
Smiley, Harry; and Blechman, Abraham, 4,424,030, Cl. 433-18.000.

Block, Jacob; and Michaels, Alan S., to W. R. Grace & Co. Method of forming polymer particles. 4,424,302, Cl. 525-58.000.

Bly, Vincent T., to United States of America, Army. Optical, temporal bandpass filter. 4,423,927, Cl. 350-331.00R.

Boardman, Allen H., to Magnavox Consumer Electronics Company. Antenna switch for home video accessories. 4,424,591, Cl. 455-289.000.

Bobbett, Ronald E.; McCormick, J. Byron; and Kerwin, William J., to United States of America, Energy. Automatic voltage imbalance detector. 4,424,491, Cl. 324-433.000.

Bock, Gernot: *See*—
Theurer, Josef; Bock, Gernot; and Ganguly, Mihir, 4,423,684, Cl. 104-7.00R.

Bodart, Detlef E., to Merck Patent Gesellschaft Mit Beschrankter Haftung. Method for the determination of nitrate ions. 4,424,277, Cl. 436-110.000.

Boden, Richard M.: *See*—
Mookherjee, Braja D.; Trenkle, Robert W.; Wolff, Robin K.; Boden, Richard M.; and Yoshida, Takao, 4,424,378, Cl. 568-374.000.

Bodner, Beverly B.; and Liebmann, Bonnie J. Overlapping bibs on strip. 4,423,523, Cl. 2-49.00R.

Boeckel, John W.; Rohde, Vernon C.; and Wells, John R., to Du Pont de Nemours, E. I., and Company. Centrifuge rotor apparatus for preparing particle spreads. 4,423,699, Cl. 118-52.000.

Boeing Company, The: *See*—
Braun, Ralph F., 4,423,924, Cl. 350-96.160.
Hogenhout, Franciscus; McDermott, Arthur W.; and Rumney, Joseph L., 4,423,620, Cl. 72-430.000.
Porter, David R., 4,423,922, Cl. 350-96.150.

Bogese, Stephen B., II, to Virginia Patent Development Corporation. Cable assembly having shielded conductor and method and apparatus for terminating same. 4,424,403, Cl. 174-36.000.

Boginskaya, Lidia M.: *See*—
Pakhomov, Gennady N.; Luste, Anita Y.; Kolesnik, Anatoly G.; Demishev, Vasily N.; Pushinina, Eva L.; Mordvinova, Maria V.; Morozova, Lilia V.; Boginskaya, Lidia M.; Voskresenskaya, Irina B.; Osadchuk, Sara Z.; and Kadnikova, Galina I., 4,424,203, Cl. 424-52.000.

Bohn, Joseph W.; Cohen, Peter A.; and Zuraw, Bruce L., to Quidel. Rapid plunger immunoassay method and apparatus. 4,424,279, Cl. 436-534.000.

Boissicat, Claude M., to Contrel Corporation. Component sorting apparatus. 4,423,815, Cl. 209-655.000.

Bolen, Ralph A., to Sawyer, John. Vehicle fire extinguisher. 4,423,784, Cl. 169-62.000.

Bona, Gioachino: *See*—
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Borden, Inc.: *See*—
Udvardy, Otto G.; Titus, Patricia E.; and Navratil, Martin, 4,424,300, Cl. 525-501.000.

Borg-Warner Chemicals, Inc.: *See*—
Halpern, Yuval, 4,424,172, Cl. 260-937.000.

Borg-Warner Corporation: *See*—
Braybrook, Kenneth A., 4,424,049, Cl. 474-201.000.

Bostic, James N., III; Carter, Robert D.; Agarwal, Ram G.; and Crowell, Ronald F., to Standard Oil Company. Pressure transient method of rapidly determining permeability, thickness and skin effect in producing wells. 4,423,625, Cl. 73-155.000.

Bottenbruch, Ludwig: *See*—
Idel, Karsten; Ostlinning, Edgar; Freitag, Dieter; and Bottenbruch, Ludwig, 4,424,339, Cl. 528-388.000.

Botzem, Werner; Knappe, Ortwin; and Srostlik, Peter, to Transnuklear GmbH. Shock absorbers. 4,423,802, Cl. 188-377.000.

Bouchard, Andre C.; English, George J.; Hall, Harold H., Jr.; and Scholz, John A., to GTE Products Corporation. Miniature photoflash unit using subminiature flash lamps. 4,424,020, Cl. 431-359.000.

Bourgein, John; and Rothman, Betsy. Universal knife block. 4,423,552, Cl. 30-296.00A.

Bowden, Wade R., Jr.: *See*—
Slater, Thomas S.; and Bowden, Wade R., Jr., 4,424,406, Cl. 174-65.00R.

Bowyer, Michael L., to Baker International Corporation. Annulus safety apparatus. 4,423,782, Cl. 166-321.000.

Boyd, Alvin L. Game-toy anthropomorphic (human-robot-shaped) dominoes. 4,423,876, Cl. 273-294.000.

Boyd, Hugh; and Kane, John J., to Goodyear Aerospace Corporation. Inflatable liner for particulate bulk cargo receptacles. 4,423,832, Cl. 222-203.000.

Braithwaite, David G., deceased (by Braithwaite, Jacqueline M., executrix); and Pickle, Joe D., to Improtec. Production of alcohols by hydration of olefins. 4,424,388, Cl. 568-899.000.

Braithwaite, Jacqueline M., executrix: *See*—
Braithwaite, David G., deceased; and Pickle, Joe D., 4,424,388, Cl. 568-899.000.

Brand, William W.: *See*—
Magee, Thomas A.; Battershell, Robert D.; Limpel, Lawrence E.; Ho, Andrew W.; Friedman, Arthur W.; Corkins, H. Glenn; Brand, William W.; Buchman, Russell; Storace, Louis; and Osgood, Edmond R., 4,424,213, Cl. 424-184.000.

Brandeis, Christine; Kempf, Jurgen; Kraus, Georg; and Kunzel, Ulrich, to International Business Machines Corporation. Reactor for reactive ion etching and etching method. 4,424,102, Cl. 204-192.00E.

Brandenstein, Manfred: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; and Reith, Walter, 4,423,911, Cl. 308-6.00C.

Brandstetter, Franz: *See*—
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Brault, Patrice G. M.: *See*—
Laroche, Pierre A. R. M.; Hoarau, Roland J.; and Brault, Patrice G. M., 4,424,481, Cl. 324-72.000.

Braun, Anton. Hermetic seal for compressors or the like. 4,424,008, Cl. 417-364.000.

Braun, Ralph F., to Boeing Company, The. Star coupler bulkhead connector. 4,423,924, Cl. 350-96.160.

Braunlin, Walter A.; Gorski, Alan; Jaehnig, Leo J.; Moskal, Clifford J.; Naylor, Joseph D.; Parimi, Krishnia; and Ward, John V., to Pittsburg & Midway Coal Mining Co., The. Process for heating coal-oil slurries. 4,424,108, Cl. 208-8.0LE.

Bray, James R.: *See*—
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Braybrook, Kenneth A., to Borg-Warner Corporation. Power transmission belt with drive blocks. 4,424,049, Cl. 474-201.000.

Bresson, Clarence R.: *See*—
Parlman, Robert M.; and Bresson, Clarence R., 4,424,122, Cl. 209-166.000.
Parlman, Robert M.; Burns, Lyle D.; and Bresson, Clarence R., 4,424,123, Cl. 209-166.000.

Breuer, Gunter: *See*—
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Breveteam S.A.: *See*—
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Briand, Louis: *See*—
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Bridges, Richard A.: *See*—
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Bridgestone Tire Company Limited: *See*—
Yotsumoto, Toshihiro; and Koyama, Kazuo, 4,424,238, Cl. 427-381.000.

Brill, Raymond B.: *See*—
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Bristol Myers Company: *See*—
Cron, Martin J.; Keil, John G.; Lin, Jeng S.; Ruggeri, Mariano V.; and Walker, Derek, 4,424,343, Cl. 536-13.800.

Bristow, Stephen D., to Atari, Inc. Video game collision detection system. 4,423,870, Cl. 273-85.00G.

Britax (Wingard) Limited: *See*—
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Britten-Kelley, Michael R.: *See*—
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Brobeck, Helmut, to AG Kuhnle, Kopp & Kausch. Improved connection structure for joining ceramic and metallic parts of a turbine shaft. 4,424,003, Cl. 416-241.00B.

Broberg, Dewey O., Jr., to Du-Bro Products, Inc. Device for forming closable wire spring snaps. 4,423,757, Cl. 140-123.000.

Broken Hill Proprietary Company Limited, The: *See*—
White, Noam; Kagi, Douglas A.; Creer, Jack G.; and Tsai, Peter, 4,424,401, Cl. 585-416.000.

Bronstein-Bonte, Irena Y.: *See*—
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Brown, Delmont D., to D. S. Brown Company, The. Expansion joint sealing structures. 4,423,979, Cl. 404-69.000.
Brown, James M., to Bell Telephone Laboratories, Incorporated. Loop fault location. 4,424,479, Cl. 324-52.000.
Brown, Richard P.: *See*—
Stanley, Philip E.; Brown, Richard P.; and Peters, Arthur, 4,424,561, Cl. 364-200.000.
Brownlee, Robert C., to Chrysler Corporation. Lamp socket. 4,423,915, Cl. 339-32.00R.
Bucher, Bernard P.: *See*—
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Buchheister, Sue; and Poulson, Ann. Ski training halter. 4,424,040, Cl. 434-253.000.
Buchl, Andrew F. Depth control apparatus. 4,423,664, Cl. 91-1.000.
Buchman, Russell: *See*—
Magee, Thomas A.; Battershell, Robert D.; Limpel, Lawrence E.; Ho, Andrew W.; Friedman, Arthur W.; Corkins, H. Glenn; Brand, William W.; Buchman, Russell; Storace, Louis; and Osgood, Edmond R., 4,424,213, Cl. 424-184.000.
Buck, Robert; and Marhofer, Gerd. Contactless proximity sensor with multilevel response. 4,424,458, Cl. 307-361.000.
Buckwalter, Brian L.: *See*—
LaHann, Thomas R.; and Buckwalter, Brian L., 4,424,205, Cl. 424-72.000.
Bucovaz, Edsel T.; and Whybrew, Walter D., to Research Corporation. Cancer detection procedure using an acyl carrier protein. 4,424,278, Cl. 436-501.000.
Buehler, William L.: *See*—
O'Brien, Lawrence B.; Winston, Walter F.; Abner, Edmund L.; Atkinson, Lowell G.; Roudebush, H. Richard; Buehler, William L.; Bergstresser, Jim K.; and Messick, Walker A., 4,424,011, Cl. 417-477.000.
Buerstinghaus, Rainer; Kiehs, Karl; Seufert, Walter; and Adolphi, Heinrich, to BASF Aktiengesellschaft. Oximinophosphoric acid derivatives, and their use for controlling pests. 4,424,215, Cl. 424-210.000.
Buis, Richard D.: *See*—
Moore, Brian E.; and Buis, Richard D., 4,424,404, Cl. 174-52.00R.
Bukhshtaber, Eliazar Y.; Andreev, Jury M.; Askinazi, Mikhail P.; Mashikhin, Anatoly D.; Plotnikov, Egor P.; and Anders, Vitaly I. Device for exciting master generator of self-contained power units for transportation facilities. 4,424,478, Cl. 322-63.000.
Buljan, Sergej-Tomislav: *See*—
Sarin, Vinod K.; and Buljan, Sergej-Tomislav, 4,424,066, Cl. 51-295.000.
Bull, Daniel N.: *See*—
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Bullock, Norman J.; and Snyder, John W., to Cissell Manufacturing Company. Air curtaining apparatus. 4,423,669, Cl. 98-36.000.
Bunger, Richard E. Dewatering apparatus for waste recovery systems. 4,424,129, Cl. 210-388.000.
Burch, Lyndon W., to B/K Patent Development, Inc. Snap-acting mechanisms. 4,424,506, Cl. 337-365.000.
Burnham, William W., to Hazeltine Corporation. High intensity light source. 4,423,953, Cl. 355-70.000.
Burns, Lyle D.: *See*—
Parlman, Robert M.; Burns, Lyle D.; and Bresson, Clarence R., 4,424,123, Cl. 209-166.000.
Burough, Irvin G.: *See*—
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Burroughs Corporation: *See*—
Roesner, Bruce B., 4,424,579, Cl. 365-105.000.
Busch, Georg: *See*—
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Butt, William C.; and Almond, Buford L., to Simplimatic Engineering Company. Rinsing machine. 4,423,745, Cl. 134-62.000.
Cadars, Patrick, to Valeo. Turbulator retaining means. 4,423,769, Cl. 165-109.00T.
Cadoux, Alain: *See*—
Neyret, Guy; and Cadoux, Alain, 4,423,611, Cl. 70-455.000.
Cahill, Lysle D.: *See*—
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Calvet, Joseph: *See*—
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Camey, William R.; and Hasenberg, Larry E., to Hyster Company. Removable gooseneck trailer. 4,423,885, Cl. 280-423.00B.
Cammilli, Leonardo: *See*—
Grassi, Gino; Cammilli, Leonardo; and Alcidi, Luciano, 4,423,733, Cl. 128-419.0PG.
Camp International, Inc.: *See*—
Meier, Robert H.; and Farr, Evelyn, 4,423,720, Cl. 128-80.00C.
Campbell, Sterret P. Method of separating a viscous flowable paste material. 4,424,236, Cl. 426-231.000.
Canadian Patents and Development Ltd.: *See*—
Hall, Laurance D.; and Yalpani, Mansur, 4,424,346, Cl. 536-20.000.
Candlin, John P.; Caunt, Anthony D.; and Law, Peter L., to Imperial Chemical Industries PLC. Drying process and product. 4,424,138, Cl. 502-162.000.
Cannon Mills Company: *See*—
Neel, Keenar A., 4,423,676, Cl. 101-211.000.
Canon Kabushiki Kaisha: *See*—
Kitamura, Takashi, 4,424,442, Cl. 250-236.000.
Kondo, Hideyo; and Fujimura, Naoto, 4,424,267, Cl. 430-66.000.
Nagane, Hiromichi, 4,424,534, Cl. 358-287.000.
Suzuki, Ryoichi; and Uchiyama, Takashi, 4,423,937, Cl. 354-446.000.
Cantrell, James E. Insulation depth gauge. 4,423,554, Cl. 33-169.00B.
Capdevielle, Martin J.: *See*—
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Carbonel, Jack: *See*—
Vairetti, Claude R. L.; Desnoyers, Michel R. L.; Carbonel, Jack; Grammont, Paul D. A.; Pachkov, Arkadyi B.; Grigoriev, Vladimir A.; and Firsov, Vladimir I., 4,424,318, Cl. 526-88.000.
Carey, Norman W., to Rexham Corporation. Packaging machine with pouch gripping clamps. 4,423,583, Cl. 53-373.000.
Caris, Richard F., to Interface, Inc. Load cell of integral unitary construction containing a solid disc-shaped measuring section. 4,423,793, Cl. 177-211.000.
Carle, Richard C.: *See*—
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Carlemalm, Eric, to Chemische Werke Lowi G.m.b.H. Embedding medium suitable for the preparation of thin sections of embedded biological materials. 4,424,329, Cl. 526-323.200.
Carlos, Donald D., to Ashland Oil, Inc. Organic surfactant oxidation promoters for hydrocarbons. 4,424,107, Cl. 208-3.000.
Carlson, William L.: *See*—
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Carney, Frederick T., Jr.: *See*—
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Carrier Corporation: *See*—
Manning, John D., 4,424,005, Cl. 417-53.000.
Carroll, Richard R.; and Papp, Alan M., to Litton Industrial Products, Inc. Machining center. 4,423,545, Cl. 29-568.000.
Cartabbia, Giovanni. Coat press. 4,423,561, Cl. 38-23.000.
Carter, Ernest E., Jr., to Halliburton Company. Cup type pipeline inflation anchor. 4,423,754, Cl. 138-93.000.
Carter, Robert D.: *See*—
Bostic, James N., III; Carter, Robert D.; Agarwal, Ram G.; and Crowell, Ronald F., 4,423,625, Cl. 73-155.000.
Caruso, Jerome C.: *See*—
Krubsack, Ronald H.; Caruso, Jerome C.; and Krubsack, Larry J., 4,424,555, Cl. 362-419.000.
Casio Computer Co., Ltd.: *See*—
Tsuzuki, Hanzo, 4,424,566, Cl. 364-405.000.
Yasutake, Kunio, 4,424,567, Cl. 364-405.000.
Cassels-Brown, Alastair K. Page turner for sheet music. 4,423,659, Cl. 84-486.000.
Castle, G. S. Peter; and Rorabeck, Cecil H., to Howmedica, Inc. Slit catheter method for measuring interstitial pressure. 4,423,740, Cl. 128-748.000.
Castonguay, Roger N., to General Electric Company. Circuit breaker compartment shield assembly. 4,424,425, Cl. 200-50.0AA.
Caterpillar Tractor Co.: *See*—
Coutant, Alan R., 4,423,644, Cl. 74-710.000.
Caton, Michael P. L.; and Stuttle, Keith A. J., to May & Baker Limited. Bicycloheptane derivatives. 4,424,374, Cl. 424-308.000.
Caunt, Anthony D.: *See*—
Candlin, John P.; Caunt, Anthony D.; and Law, Peter L., 4,424,138, Cl. 502-162.000.
Cavileer, Watson V.; and Locy, Don B. Flow meter. 4,423,627, Cl. 73-215.000.
Celanese Corporation: *See*—
DiEdwardo, Andrew H.; and Kusumgar, Rajal M., 4,424,307, Cl. 525-154.000.
Centre de Recherche Industrielle du Quebec: *See*—
Malric, Henri-Bernard, 4,424,280, Cl. 501-84.000.
Cerami, Anthony; and Tabachnik, Nina F., to Rockefeller University, The. Method for the reduction of mucin viscosity. 4,424,216, Cl. 424-211.000.
Cerny, Daryl D., to Ball Corporation. Method for sealing a multilayered tube having a barrier layer. 4,424,182, Cl. 264-138.000.
Certified Energy Corp.: *See*—
Venable, Bennett M., 4,423,602, Cl. 62-238.600.
CGEE Alsthom: *See*—
Godfroid, Henri, 4,424,475, Cl. 318-803.000.
CGR: *See*—
Audenard, Bernard; and Marini, Jean, 4,423,634, Cl. 73-587.000.
Champion Spark Plug Company: *See*—
Coeling, Kenneth J., 4,423,840, Cl. 239-3.000.
Champoux, Louis A., to Fatigue Technology, Inc. Apparatus and method for prestressing a countersunk fastener hole. 4,423,619, Cl. 72-393.000.
Chan, Chor S.: *See*—
Luo, Zong S.; and Chan, Chor S., 4,423,675, Cl. 101-93.040.
Chandler Evans Inc.: *See*—
Zagranski, Raymond D.; and Howlett, James J., 4,423,593, Cl. 60-39.161.

Chang, Gee-Kung; El Hamamsy, Mahmoud A.; Hartman, Adrian R.; and Lorimor, Orval G., to Bell Telephone Laboratories, Incorporated. Optically toggled bidirectional switch. 4,424,544, Cl. 361-56.000.
Chang, Shien-Fang. Dry and wet dual-purpose dust-collecting device. 4,424,069, Cl. 55-226.000.
Chapman, Bruce E.: *See*—
Marsocci, Angelo A.; Powers, Robert B.; and Chapman, Bruce E., 4,424,553, Cl. 361-427.000.
Chaput, Guy J.; Sich, Edward M.; and Gumb, Beverley W. T., to Northern Telecom Limited. Electret microphone shield. 4,424,419, Cl. 179-111.00E.
Charlton, Robert S.: *See*—
Frazier, William C.; and Charlton, Robert S., 4,423,845, Cl. 241-261.300.
Chateigner, Serge: *See*—
Minjolle, Louis; Lengronne, Bernard; Calvet, Joseph; and Chateigner, Serge, 4,424,179, Cl. 264-44.000.
Chattha, Mohinder S., to Ford Motor Company. High solids urethane coatings from new tetrahydroxy oligomers. 4,424,334, Cl. 528-77.000.
Chauvin, Yves; Commereuc, Dominique; Sugier, Andre; and Le Page, Jean-Francois, to Institut Francais du Petrole. Process for the catalytic synthesis of hydrocarbons, particularly of methane, from hydrogen and carbon monoxide. 4,424,282, Cl. 518-700.000.
Chavey, Christian; and Lagoutte, Pierre, to LMT Radio Professionelle. Method for establishing DAMA radiotelephone conversations by single-span satellite transmission. 4,424,417, Cl. 179-2.00E.
Chavrier, Roger P.: *See*—
Rousset, Jacky; and Chavrier, Roger P., 4,424,290, Cl. 524-5.000.
Chelnokov, Gennady L.: *See*—
Rossoshinsky, Alexei A.; Balakin, Valentin I.; Babak, Alexandr K.; Lebedev, Vladimir K.; Mironov, Lev G.; Chelnokov, Gennady I.; and Vinogradov, Gennady V., 4,424,106, Cl. 204-256.000.
Chemische Werke Lowi G.m.b.H.: *See*—
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Chesler, Ronald B.: *See*—
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Chester, Richard J.: *See*—
Barth, Douglas A.; and Chester, Richard J., 4,423,805, Cl. 194-1.00G.
Chevron Research Company: *See*—
Aagaard, Paul M., 4,423,985, Cl. 405-224.000.
Reed, Marion G., 4,424,076, Cl. 106-287.170.
Chi, Chang W.: *See*—
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Chino, Koichi: *See*—
Matsuda, Masami; Chino, Koichi; and Kudo, Kazuhiko, 4,424,016, Cl. 425-144.000.
Chisholm, Matthew F., to Reynolds Metals Company. Aluminum alloy. 4,424,084, Cl. 148-417.000.
Chisso Corporation: *See*—
Shioiri, Takayuki; Aoyama, Toyohiko; and Mori, Shigehiro, 4,424,158, Cl. 260-239.0AA.
Chiyoda Chemical Engineering & Construction Co., Ltd.: *See*—
Asaoka, Sachio; Shiroto, Yoshimi; Nakamura, Munekazu; and Ono, Takeo, 4,424,142, Cl. 502-84.000.
Chloride Group Public Limited Company: *See*—
McGuire, Michael E.; and Tatlock, Edwin, 4,424,264, Cl. 429-179.000.
Chmela, John F.; Fletcher, Carl R.; and Sarnoff, Norton, to Ensar Corporation. Pizza cutting and serving utensil. 4,423,551, Cl. 30-142.000.
Choi, Henry W.; and Dines, Martin B., to Occidental Research Corporation. Selective removal of nitrogen-containing compounds from hydrocarbon mixtures. 4,424,121, Cl. 208-254.00R.
Choly, Mitchell, to General Motors Corporation. Mechanical hand for a door-opener. 4,423,999, Cl. 414-744.00A.
Chou, Robert V.: *See*—
Payne, Thomas R.; and Chou, Robert V., 4,424,439, Cl. 219-501.000.
Christensen, Burton G.; and Ratcliffe, Ronald W., to Merck & Co., Inc. 6-(1'-Hydroxyethyl)-3-substituted amino-1-azabicyclo-[3.2.0]hept-2-en-7-one-2-carboxylic acid. 4,424,230, Cl. 424-274.000.
Christensen, Ronald C.; Genske, Roger P.; Kester, Dennis E.; and Ouian, William F., to American Can Company. Retortable foil-based packaging structure. 4,424,256, Cl. 428-347.000.
Christmann, Werner J.: *See*—
Becker Carl H.; and Christmann, Werner J., 4,424,580, Cl. 365-121.000.
Christopher, Glenn B., to Jet Research Center, Inc. Pyrotechnic compositions for severing conduits. 4,424,086, Cl. 149-19.300.
Chromalloy American Corporation: *See*—
Anderson, Charles W.; and Carlson, William L., 4,423,789, Cl. 172-585.000.
Chrysler Corporation: *See*—
Brownlee, Robert C., 4,423,915, Cl. 339-32.00R.
Chung, Kwang E.: *See*—
Ho, William W.; Harker, Alan B.; Goldberg, Ira B.; and Chung, Kwang E., 4,423,623, Cl. 73-61.00R.
Chung, Rack H., to General Electric Co. Silicon containing lactams. 4,424,157, Cl. 260-239.30R.
Ciba-Geigy Corporation: *See*—
Biollaz, Michel, 4,424,159, Cl. 260-239.500.
Haug, Theobald, 4,424,336, Cl. 528-117.000.
Kaschig, Jurgen; and Lohmann, Dieter, 4,424,359, Cl. 546-255.000.
Wasley, Jan W. F., 4,424,221, Cl. 424-250.000.
Weber, Kurt, 4,424,170, Cl. 260-505.00C.
Zinke, Horst, 4,424,173, Cl. 260-985.000.
Zweifel, Hans; Schilling, Walter; Storni, Angelo; and Bellus, Daniel, 4,424,366, Cl. 548-431.000.
Cigs-Geigy Corporation: *See*—
Haase, Jaroslav; and Palmberg, Roger, 4,424,284, Cl. 521-36.000.
Cissell Manufacturing Company: *See*—
Bullock, Norman J.; and Snyder, John W., 4,423,669, Cl. 98-36.000.
Citizen Watch Company Limited: *See*—
Suzuki, Fuminori, 4,423,963, Cl. 368-68.000.
Ueno, Katumi; and Nishizaki, Genichi, 4,423,686, Cl. 108-20.000.
Clabburn, Robin J. T., to Raychem Limited. Connector. 4,424,411, Cl. 174-84.00R.
Clairol Incorporated: *See*—
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Clarion Co., Ltd.: *See*—
Yamaguchi, Katsumi; and Okada, Hitoshi, 4,423,847, Cl. 242-200.000.
Clark, Justin S.; and Yen, Ming-Cheng, to Intermountain Health Care. Method and apparatus for measuring the gaseous content of blood. 4,424,276, Cl. 436-50.000.
Clarke, John P., to Virginia Chemicals Inc. Rehardening of copper connectors. 4,423,618, Cl. 72-370.000.
Clarke, Samuel L. H.; and Inder, Robert W., to Marconi Company Limited, The. Text processing system including means to associate commentary with text. 4,424,575, Cl. 364-900.000.
Cleary, James W., to Phillips Petroleum Company. Polymer treatment. 4,424,338, Cl. 528-388.000.
Clements, Alan, to Ben Clements & Sons, Inc. Needle construction for tag attachers. 4,423,837, Cl. 227-67.000.
Cleusix, Willy: *See*—
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Coeling, Kenneth J., to Champion Spark Plug Company. Rotary atomizer bell. 4,423,840, Cl. 239-3.000.
Coetsier, Paul A., to Etablissements M. Mueller & Cie. Nose unit for a vehicle-wheel balancing machine. 4,423,633, Cl. 73-487.000.
Cohen, Peter A.: *See*—
Bohn, Joseph W.; Cohen, Peter A.; and Zuraw, Bruce L., 4,424,279, Cl. 436-534.000.
Cole, Barrett E., to Honeywell Inc. Thin film deposition. 4,424,103, Cl. 204-192.00R.
Cole-Parmer Instrument Company: *See*—
Nemcek, Donald S., Sr.; and Selman, John J., III, 4,423,968, Cl. 374-170.000.
Colijn, Johannes J. V.: *See*—
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Collagen Corporation: *See*—
Wallace, Donald G.; and Wade, Susan B., 4,424,208, Cl. 424-177.000.
Collen, John W., to Ford Motor Company. Electrical motor. 4,424,471, Cl. 318-138.000.
Collin, Reimer; Gallenkamp, Bernd; and Diehr, Hans-Joachim, to Bayer Aktiengesellschaft. Preparation of α-cyano-3-phenoxy-benzyl 3-alkenyl-2,2-dimethyl-cyclopropanecarboxylates. 4,424,168, Cl. 260-465.00D.
Combustion Engineering, Inc.: *See*—
Hackett, Charles D.; and Bray, James R., 4,423,890, Cl. 285-189.000.
Commereuc, Dominique: *See*—
Chauvin, Yves; Commereuc, Dominique; Sugier, Andre; and Le Page, Jean-Francois, 4,424,282, Cl. 518-700.000.
Commonwealth Scientific: *See*—
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Communications Technology Corporation: *See*—
Muehlhausen, Almon A., II, 4,423,916, Cl. 339-59.00M.
Compagnie Generale des Etablissements Michelin: *See*—
Durif, Pierre, 4,424,088, Cl. 156-87.000.
Comparetto, John E. Dynamic orthotic device containing fluid. 4,423,735, Cl. 128-594.000.
Conn, Shepard; and Kushner, Arnold, to KCDP Corporation. Fluid-expansible contraceptive tampon and applicator. 4,424,054, Cl. 604-11.000.
Conoco Inc.: *See*—
Shannon, Mark L., 4,424,308, Cl. 525-196.000.
Zielke, Clyde W.; and Rosenhoover, William A., 4,424,111, Cl. 208-10.000.
Conroy, George J.; and Ackerman, Melvin N., to United States of America, Interior. Apparatus for lifting a flexible cable. 4,423,852, Cl. 254-264.000.
Container Industries Inc.: *See*—
Katz, Hyman, 4,423,829, Cl. 222-95.000.
Continental White Cap. Inc.: *See*—
Powalowski, Joseph C., 4,423,822, Cl. 215-365.000.
Contois, Lawrence E.: *See*—
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Contrel Corporation: *See*—
Boissicat, Claude M., 4,423,815, Cl. 209-655.000.
Cook, Bruce M., to Westinghouse Electric Corp. Power generation. 4,424,186, Cl. 376-211.000.
Cook, Don W. Game apparatus. 4,423,877, Cl. 273-317.000.
Cook, Harland K. Method and apparatus for computing data for producing photo prints. 4,423,952, Cl. 355-38.000.
Cooper, Dale E.; Grillot, Ronald E.; Quick, Gary K.; and Smith, Kevin R., to King Radio Corporation. Electrical connecting device. 4,423,920, Cl. 339-252.00R.
Cooper Industries, Inc.: *See*—
Kosmowski, Wojciech B., 4,423,880, Cl. 279-4.000.
Coppens, Guillaume: *See*—
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Cordis Corporation: *See*—
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Cordis Dow Corp.: *See*—
Mather, Frank W., III; Preussner, Andreas; and Berry, Gaylord L., 4,424,190, Cl. 422-46.000.
Corkins, H. Glenn: *See*—
Magee, Thomas A.; Battershell, Robert D.; Limpel, Lawrence E.; Ho, Andrew W.; Friedman, Arthur W.; Corkins, H. Glenn; Brand, William W.; Buchman, Russell; Storace, Louis; and Osgood, Edmond R., 4,424,213, Cl. 424-184.000.
Cormier, Raymond G.; Bridges, Richard A.; and Peterson, Jeffrey L., to Nashua Corporation. Jam detection apparatus and method in a photocopier. 4,423,949, Cl. 355-14.00R.
Cornils, Boy; Frohning, Carl D.; Diekhaus, Gerhard; Wiebus, Ernst; and Bahrmann, Helmut, to Ruhrchemie Aktiengesellschaft. Process for producing ethanol and n-propanol from methanol. 4,424,383, Cl. 568-902.000.
Corning Glass Works: *See*—
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Grade, Lanny V.; and Corry, Stuart E., 4,423,639, Cl. 73-862.420.
Cote, Camille. Manure handling unit. 4,423,988, Cl. 406-125.000.
Coulter Systems Corporation: *See*—
Thomas, E. Raymond; Cahill, Lyale D.; Marshall, William W.; Talley, Luke L.; Lawson, John A.; and Wilcox, Brian N., 4,424,589, Cl. 382-61.000.
Coutant, Alan R., to Caterpillar Tractor Co. Multi-speed planetary differential. 4,423,644, Cl. 74-710.000.
Cowan, Donald F. Electronic scale apparatus and method of controlling weight. 4,423,792, Cl. 177-25.000.
Crawford, Ray V., to General Motors Corporation. Seat position control mechanism. 4,423,904, Cl. 297-341.000.
Creative Tool Company: *See*—
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Creer, Jack G.: *See*—
White, Noam; Kagi, Douglas A.; Creer, Jack G.; and Tsai, Peter, 4,424,401, Cl. 585-416.000.
Crockford, David R.; and Rhodes, Buck A., to Nuc Med Inc.; and University Patents Inc. Method for radiolabeling proteins with technetium-99m. 4,424,200, Cl. 424-1.100.
Cron, Martin J.; Keil, John G.; Lin, Jeng S.; Ruggeri, Mariano V.; and Walker, Derek, to Bristol Myers Company. Preparation of 1-N-[ω-amino-α-hydroxyalkanoyl]kanamycin polysilylates and products. 4,424,343, Cl. 536-13.800.
Cross, Rex D. Torque cancelling, torque type window sash balance. 4,423,536, Cl. 16-197.000.
Crowell, Ronald F.: *See*—
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Crowell, Thomas A., to Eli Lilly and Company. Process for preparing a trans-6-propenyl benzimidazole. 4,424,362, Cl. 548-306.000.
Crugher, Charles C., III: *See*—
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Cullen, Steven R.: *See*—
Lee, Richard H.; Cullen, Steven R.; Bailen, Eddie H.; Rasmussen, David H.; and Johnson, William C., 4,424,051, Cl. 493-37.000.
Cummings, Robert, to U.S. Clinical Products, Inc. Flexible sterile closure system for containers. 4,423,819, Cl. 215-232.000.
Cummins Engine Company, Inc.: *See*—
Roettgen, Leslie A., 4,423,751, Cl. 137-557.000.
Sweetland, Roger D., 4,423,708, Cl. 123-196.0AB.
Curti, Ezio. Device for exposing to light printed electric circuit supporting plates or boards. 4,423,954, Cl. 355-73.000.
D. S. Brown Company, The: *See*—
Brown, Delmont D., 4,423,979, Cl. 404-69.000.
Dabby, Franklin W.; and Chesler, Ronald B., to Times Fiber Communications, Inc. Graded optical waveguides. 4,423,925, Cl. 350-96.310.
Dadiras, Nickiforos G.; and Baugh, Ronald D., to Sedco-Hamilton Production Services. Marine riser system. 4,423,983, Cl. 405-195.000.
Dahan, Jose. Dento-facial orthopaedy apparatus. 4,424,031, Cl. 433-18.000.
Dahlgren, Jons A., to Alfa-Laval AB. Plate heat exchanger. 4,423,772, Cl. 165-166.000.
Dai Nippon Insatsu Kabushiki Kaisha: *See*—
Mizuno, Shogo; Suzuki, Takao; Kawasaki, Sadanobu; and Takeda, Hideichiro, 4,424,091, Cl. 156-234.000.
Daikin Kogyo Co., Ltd.: *See*—
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Andres, Rudolf; and Seel, Holger, 4,424,509, Cl. 340-52.00E.
Scheurenbrand, Dieter; and Stotz, Manfred, 4,423,746, Cl. 137-43.000.
Wallentowitz, Henning; Struck, Helmut; and Richter, Karl-Heinz, 4,423,883, Cl. 280-96.000.
Dainippon Pharmaceutical Co., Ltd.: *See*—
Shimohiro, Yoshiyuki; Murata, Akio; and Nisioka, Chiyoko, 4,424,061, Cl. 8-493.000.
Dainippon Screen Mfg. Co., Ltd.: *See*—
Matsumoto, Katsutoshi, 4,423,678, Cl. 101-248.000.
Daitoku, Koichi: *See*—
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Daman, Louis F.; Newman, Albert L.; and Patricia, John, to Singer Company, The. Arrangement for mounting a convertible bed sewing machine in a flat bed cabinet. 4,423,912, Cl. 312-30.000.
Daniele, Joseph J., to Xerox Corporation. Read/write bar for multimode reproduction machine. 4,424,524, Cl. 346-160.000.
Darst, Patrick C.: *See*—
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Daubenbuchel, Werner; Hess, Dieter; and Kiefer, Erich, to Krupp Kautex Machinenbau GmbH. Procedure and device for production of a preform of thermoplastic synthetic material by means of extrusion. 4,424,178, Cl. 264-40.100.
Davies, Alan R.; MacAuley, Ewen D. M.; Harris, George; Baker, Raymond; Howse, Philip E.; and Evans, David A., to University of Southampton, The; and OECOS Ltd. Traps and trapping techniques. 4,423,564, Cl. 43-121.000.
Davis, Daniel R., Sr. Cable-stringing support block. 4,423,853, Cl. 254-390.000.
Davoine, Jean-Claude: *See*—
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Davy-Loewy Limited: *See*—
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Days, Frank, to Beringer Co., Inc. Process for hydrolysis removal of condensation polymer from various objects. 4,424,080, Cl. 134-5.000.
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DBS, Inc.: *See*—
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Debus, Allen A. G.: *See*—
Rosenstiel, Terry L.; and Debus, Allen A. G., 4,424,148, Cl. 252-628.000.
Decker, Donald L.; Porteus, James O.; and Grandjean, Darrell J., to United States of America, Navy. Machining process for metal mirror surfaces. 4,423,650, Cl. 82-1.00C.
DeClark, Bruce W.; and Weber, Joseph H., to Progressive Blasting Systems, Inc. Gravity accelerated shot treating apparatus. 4,423,613, Cl. 72-53.000.
de Clercq, Erik D. A.: *See*—
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Degussa Aktiengesellschaft: *See*—
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Dehnert, Johannes; Loffler, Hermann; and Lamm, Gunther, to BASF Aktiengesellschaft. Azo dye having a 3-cyano- or 3-carbamoyl-2,6-diaminopyridine coupling component. 4,424,154, Cl. 260-156.000.
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de Jong, Cornelis A.: *See*—
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de Koningh, Tom: *See*—
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Delalande S.A.: *See*—
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DeLand, Robert E.: *See*—
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Schmidt, Gunther; Eberlein, Wolfgang; Engel, Wolfhard; Trummlitz, Gunter; Hammer, Rudolf; and Del Soldato, Piero, 4,424,225, Cl. 424-256.000.
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Demizu, Michinosuke: *See*—
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Demopoulos, Dino M.: *See*—
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Dennard, Robert H.; and Wordeman, Matthew R., to International Business Machines Corporation. Structure for collection of ionization-induced excess minority carriers in a semiconductor substrate and method for the fabrication thereof. 4,424,526, Cl. 357-29.000.

Denton, Clyde J.; and Lamb, Lloyd T., to Zetec, Inc. Phase rotation circuit for an eddy current tester. 4,424,486, Cl. 324-225.000.

den Toonder, Pieter; Fondse, Pieter J.; Seltenrijch, Johannes; de Jong, Cornelis A.; and de Koningh, Tom, to Oak Industries Inc. Coding and decoding system for video and audio signals. 4,424,532, Cl. 358-120.000.

Dersedt, Roger; Torelli, Vesperto; Vacher, Jean; and Benzoni, Josette, to Roussel Uclaf. Novel 3 α-amino steroids. 4,424,218, Cl. 424-238.000.

Derr, Ralph, Jr., to Gulf & Western Manufacturing Company. Cam activated planetary turning machine. 4,423,991, Cl. 409-200.000.

DeSantis, Raymond P.; and Puffer, Herbert J., Jr., to PTX-Pentronix, Inc. Part pick-up mechanism for powder compacting presses and the like. 4,424,185, Cl. 264-334.000.

Desnoyers, Michel R. L.: *See*—
Vairetti, Claude R. L.; Desnoyers, Michel R. L.; Carbonel, Jack; Grammont, Paul D. A.; Pachkov, Arkadyi B.; Grigoriev, Vladimir A.; and Firsov, Vladimir I., 4,424,318, Cl. 526-88.000.

Deutsche Salice GmbH: *See*—
Salice, Luciano, 4,423,537, Cl. 16-258.000.

Dewas, Raymond. Weft inserter for weaving machines. 4,423,756, Cl. 139-448.000.

DeWitt, David P.; Hannemann, Robert E.; Robinson, Barrett F.; and Hanley, Edward J., to Purdue Research Foundation. Method for evaluation of erythema utilizing skin reflectance measurements. 4,423,736, Cl. 128-633.000.

Dey, Albert W.: *See*—
Stevenson, Robert A.; and Dey, Albert W., 4,424,551, Cl. 361-302.000.

Dhein, Rolf: *See*—
Hentschel, Karl-Heinz; and Dhein, Rolf, 4,424,400, Cl. 585-20.000.

Diamond Shamrock Corporation: *See*—
Villa, Jose L.; Sinka, Joseph V.; Marcellis, Alphonso W.; and Fleming, Joseph P., 4,424,074, Cl. 106-90.000.

Dickinson, Daniel C.: *See*—
Scott, William B.; Dickinson, Daniel C.; and Arnesson, Joel C. E., 4,423,546, Cl. 29-568.000.

Dickman, Dennis M. Bandage guard. 4,423,722, Cl. 128-132.00R.

Didier-Werke A.G.: *See*—
Richter, Werner, 4,423,833, Cl. 222-591.000.

DiEdwardo, Andrew H.; and Kusumgar, Rajal M., to Celanese Corporation. Oxymethylene polymer modified with 1,2-polybutadiene exhibiting enhanced tensile impact properties. 4,424,307, Cl. 525-154.000.

Diehl, Firma: *See*—
Politzer, Anton; and Machmer, Wilhelm, 4,423,663, Cl. 89-40.00A.

Diehr, Hans-Joachim: *See*—
Colln, Reimer; Gallenkamp, Bernd; and Diehr, Hans-Joachim, 4,424,168, Cl. 260-465.00D.

Diekhaus, Gerhard: *See*—
Cornils, Boy; Frohning, Carl D.; Diekhaus, Gerhard; Wiebus, Ernst; and Bahrmann, Helmut, 4,424,383, Cl. 568-902.000.

DiGeronimo, Michael J., to International Paper Company. Sterilization of packaging material. 4,424,188, Cl. 422-20.000.

DiGiulio, Adolph V., to Atlantic Richfield Company. Process for forming fast-cool vinyl aromatic expandable polymers. 4,424,285, Cl. 521-56.000.

Dines, Martin B.: *See*—
Choi, Henry W.; and Dines, Martin B., 4,424,121, Cl. 208-254.00R.

Dinur, Eldad, to Naan Mechanical Works. Selectable separation and capacity irrigation line. 4,423,838, Cl. 239-1.000.

DiSalvo, Anthony L.; and Yu, Arthur J., to Stauffer Chemical Company. Compositions for forming poly(oxazolidone/urethane) thermosets and products therefrom. 4,424,316, Cl. 525-528.000.

Disco Aluminum Products Co., Inc.: *See*—
Meigs, William; and McWhirter, Horace B., II, 4,423,578, Cl. 52-403.000.

DiVelez, Gilbert J. Alignment device. 4,423,556, Cl. 33-180.00R.

DMA Systems Corporation: *See*—
Lewis, Martyn A.; Pensiman, Steven K.; and Sutton, David A., 4,424,543, Cl. 360-135.000.

Dr. Johannes Heidenhain GmbH: *See*—
Schmitt, Walter, 4,423,958, Cl. 356-375.000.

Dr. Karl Thomae GmbH: *See*—
Eberlein, Wolfgang; Trummlitz, Gunter; Schmidt, Gunther; Engel, Wolfhard; Hammer, Rudolf; and Del Soldato, Piero, 4,424,226, Cl. 424-263.000.
Schmidt, Gunther; Eberlein, Wolfgang; Engel, Wolfhard; Trummlitz, Gunter; Hammer, Rudolf; and Del Soldato, Piero, 4,424,225, Cl. 424-256.000.

Dold, Berthold, to Kienzle Apparate GmbH. Construction of a housing, particularly for tachographs, and of a cover pivotally arranged on the housing. 4,423,631, Cl. 73-431.000.

Dooley, Daniel; Dooley, Joseph; and Creative Tool Company. Diesel timing light. 4,423,624, Cl. 73-119.00A.

Dooley, Joseph: *See*—
Dooley, Daniel; Dooley, Joseph; and Creative Tool Company, 4,423,624, Cl. 73-119.00A.

Dostert, Philippe L.; Imbert, Thierry F.; and Bucher, Bernard P., to Delalande S.A. β-3-Amino nor-tropane compounds. 4,424,358, Cl. 546-124.000.

Dow Chemical Company, The: *See*—
Erickson, Robert E., 4,424,247, Cl. 428-138.000.
Hay, Robert A., II; and Crugher, Charles C., III, 4,423,767, Cl. 165-81.000.
Hefner, Robert E., Jr.; and McConchie, Garnet E., 4,424,310, Cl. 526-277.000.
Ishibe, Nobuyuki, 4,424,386, Cl. 570-109.000.
Reifschneider, Walter, 4,424,217, Cl. 424-216.000.
Strom, Robert M., 4,424,395, Cl. 560-133.000.

Dow Corning Corporation: *See*—
Bey, Alvin E., 4,424,297, Cl. 524-714.000.

Drach, Edward. Device for retaining and draining kitchen articles. 4,423,529, Cl. 4-656.000.

Dragerwerk Aktiengesellschaft: *See*—
Winkler, Jorg; Matthiessen, Hans; and Warncke, Ernst, 4,423,723, Cl. 128-202.220.

Dresser Industries, Inc.: *See*—
Weise, Stanley A., 4,423,889, Cl. 285-39.000.

Drogin, Edwin M., to Eaton Corporation. Adaptive bandwidth signal encoder. 4,424,482, Cl. 324-79.00D.

Du-Bro Products, Inc.: *See*—
Broberg, Dewey O., Jr., 4,423,757, Cl. 140-123.000.

Dumbser, Gerhard: *See*—
Fey, Rainer; Dumbser, Gerhard; and Laun, Arthur, 4,424,548, Cl. 361-152.000.

Dunlop Limited: *See*—
Haines, Robert C., 4,423,869, Cl. 273-73.00C.
Treves, Barry W.; and Kemp, Ian, 4,423,760, Cl. 152-209.00R.

Du Pont de Nemours, E. I., and Company: *See*—
Anderson, Bernard F., 4,424,253, Cl. 428-215.000.
Antonelli, Joseph A., 4,424,296, Cl. 524-539.000.
Boeckel, John W.; Rohde, Vernon C.; and Wells, John R., 4,423,699, Cl. 118-52.000.
Eskridge, Clifford H.; and Luise, Robert R., 4,424,184, Cl. 264-235.000.
Hartig, Martval J., 4,424,098, Cl. 159-1.00W.
Hoene, David J.; and Riggs, John L., 4,424,397, Cl. 568-473.000.
Levitt, George, 4,424,073, Cl. 71-92.000.
Schwing, Gregory W., 4,424,377, Cl. 564-91.000.

Durand, Pierre; and Jouffroy, Guy, to Societe Chimique des Charbonnages —CdF Chimie. Process for reducing the chances of ignition and explosion due to the decomposiotn of high-pressure industrial process gases. 4,424,319, Cl. 526-88.000.

Durif, Pierre, to Compagnie Generale des Etablissements Michelin. Process for causing at least two bodies to adhere to each other, in particular in order to manufacture, repair or retread a tire. 4,424,088, Cl. 156-87.000.

Durr, Walter; Weisse, Dietrich; Simon, Ulrich; and von Neufville-Schoepflin, Friedwalt, to IWE Ingenieurgellschaft fuer wirtschaftliche Energienutzung mit beschraenkter Haftung, Firma. Method and circuit arrangement for controlling the r.p.m. of a three-phase motor. 4,424,474, Cl. 318-798.000.

Duskin Franchise Kabushiki Kaisha: *See*—
Yagi, Akira; Nishimura, Haruo; Bandai, Shinji; Kajimaki, Masao; Nakajima, Yoshihiro; and Matsumoto, Noriyuki, 4,423,532, Cl. 15-182.000.

Duwel, Edward C.: *See*—
Eckert, Alton B., Jr.; and Duwel, Edward C., 4,424,573, Cl. 364-900.000.

Dyar, Harrison G. Thermal insulating system particularly adapted for building construction. 4,423,579, Cl. 52-407.000.

Dyar, Harrison G. Thermal insulating system particularly adapted for building construction. 4,423,580, Cl. 52-407.000.

Dynamit Nobel AG: *See*—
El-Chahawi, Moustafa; Prange, Uwe; Richtzenhain, Hermann; and Vogt, Wilhelm, 4,424,375, Cl. 560-105.000.
Schmidt, Hans-Georg, 4,424,369, Cl. 549-273.000.
Schmidt, Werner, 4,424,075, Cl. 106-287.120.

Dyrsting, Hjarne: *See*—
Jorgensen, Dan; and Dyrsting, Hjarne, 4,424,229, Cl. 424-273.00R.

E. R. Squibb & Sons, Inc.: *See*—
Moniot, Jerome L.; Fox, Rita T.; Sprague, Peter W.; and Haslanger, Martin F., 4,424,376, Cl. 560-120.000.
Sundeen, Joseph E.; and Dejneka, Tamara, 4,424,354, Cl. 544-299.000.

Eagle Industry Co., Ltd.: *See*—
Kuboichi, Koichi, 4,423,642, Cl. 74-2.000.

Eastman Kodak Company: *See*—
Barbee, Robert B., 4,424,242, Cl. 428-35.000.
Berwick, Martin A.; Contois, Lawrence E.; and Reynolds, George A., 4,424,268, Cl. 430-83.000.
Gordon, Robert A., 4,423,956, Cl. 355-110.000.
Jakubowicz, Raymond F., 4,424,191, Cl. 422-65.000.
Lambeth, David N.; Lee, James K.; and Frank, Lee F., 4,423,934, Cl. 354-412.000.

Easton, Thomas G.: *See*—
Valinsky, Jay E.; Reich, Edward; and Easton, Thomas G., 4,424,201, Cl. 424-3.000.

Eaton, Brian M., to Hardinge Brothers, Inc. Retractable bar stock feeder. 4,423,993, Cl. 414-17.000.

Eaton Corporation: *See*—
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McNamara, Thomas V., 4,423,643, Cl. 74-331.000.

Ebauches Electroniques: *See*—
Leuthold, Oskar, 4,424,457, Cl. 307-350.000.

Ebauches Electroniques S.A.: *See*—
Griessen, Jean-Bernard; and Cleusix, Willy, 4,423,964, Cl. 368-74.000.

Ebauches, S.A.: *See*—
Laesser, Claude, 4,423,928, Cl. 350-335.000.

Eberlein, Wolfgang; Trummlitz, Gunter; Schmidt, Gunther; Engel, Wolfhard; Hammer, Rudolf; and Del Soldato, Piero, to Dr. Karl Thomae GmbH. Pyridobenzodiazepinones, pharmaceutical compositions thereof and method of use thereof. 4,424,226, Cl. 424-263.000.

Eberlein, Wolfgang: *See*—
Engel, Wolfhard; Schmidt, Gunther; Trummlitz, Gunther; Eberlein, Wolfgang; Hammer, Rudolf; and Soldato, Piero D., 4,424,222, Cl. 424-250.000.
Schmidt, Gunther; Eberlein, Wolfgang; Engel, Wolfhard; Trummlitz, Gunter; Hammer, Rudolf; and Del Soldato, Piero, 4,424,225, Cl. 424-256.000.

Echte, Adolf: *See*—
Hambrecht, Juergen; Brandstetter, Franz; Echte, Adolf; Gerberding, Karl; and Heckmann, Walter, 4,424,304, Cl. 525-68.000.

Eckert, Alton B., Jr.; and Duwel, Edward C., to Pitney Bowes Inc. System for entering a postage meter serial number into a nonvolatile memory from an external channel after assembly of the meter. 4,424,573, Cl. 364-900.000.

Eckert, Guenter: *See*—
Penzel, Erich; Eckert, Guenter; Heider, Lothar; Wuertele, Lothar; and Schackert, Werner, 4,424,298, Cl. 524-747.000.

Ecomard, Andre; Briand, Louis; and Pinchon, Philippe, to Institut Francais du Petrole. Fuel pump-injector unitary assembly for internal combustion engine. 4,423,715, Cl. 123-501.000.

Economics Laboratory, Inc.: *See*—
Rowan, Henry A., 4,424,082, Cl. 134-25.400.

Edelman, Seymour; and Ballard, Lowell D., to United States of America, Army. Piezoelectric polymer heat exchanger. 4,423,768, Cl. 165-84.000.

Edelstein, Harold: *See*—
Tarasenko, Valentin; and Edelstein, Harold, 4,424,067, Cl. 55-16.000.

Edgerton, Nelson W., to Amerace Corporation. Splice connector with shield break. 4,424,410, Cl. 174-73.00R.

Edlund, Carl E., to Southern Gas Association. Reciprocating compressor analog. 4,424,571, Cl. 364-806.000.

Eguchi, Mitsuo; Kikuchi, Yoshimi; and Ichino, Nobuyuki, to Mamiya Koki Kabushiki Kaisha. Automatic focusing device. 4,423,935, Cl. 354-402.000.

Egyt Gyogyszervegyeszeti Gyar: *See*—
Benko, Pal; Kovanyi, Gyorgyi nee Lax; Timar, Judit nee Gergely; Sigmond, Maria nee Lakatos; Petocz, Lujza; Gorog, Peter; Kosoczky, Ibolya; Szirt, Eniko nee Kiszelly; and Toncsev, Hristone, 4,424,351, Cl. 542-439.000.

Ehrgott, Frederick J.: *See*—
Klioze, Solomon S.; and Ehrgott, Frederick J., 4,424,357, Cl. 546-207.000.

Eich, William D.: *See*—
Preston, Seaton T.; Greenwald, Frank L.; Eich, William D.; and Berger, Robert, 4,423,945, Cl. 354-313.000.

Elan Pressure Clean Limited: *See*—
Bartlett, John M., 4,423,622, Cl. 73-49.500.

Elarde, Vito D. High temperature circuit board. 4,424,408, Cl. 174-68.500.

El-Chahawi, Moustafa; Prange, Uwe; Richtzenhain, Hermann; and Vogt, Wilhelm, to Dynamit Nobel AG. Method and apparatus for performing carbonylation reactions. 4,424,375, Cl. 560-105.000.

Electric Power Research Institute, Inc.: *See*—
Esselman, Walter H.; and Green, Stanley J., 4,423,703, Cl. 122-510.000.

Elget Ing.-Buro fur Grafische und Elektronische Technik: *See*—
Lipka, Erich; and Lendle, Eberhard, 4,424,097, Cl. 156-656.000.

El Hamamsy, Mahmoud A.: *See*—
Chang, Gee-Kung; El Hamamsy, Mahmoud A.; Hartman, Adrian R.; and Lorimor, Orval G., 4,424,544, Cl. 361-56.000.

Eli Lilly and Company: *See*—
Crowell, Thomas A., 4,424,362, Cl. 548-306.000.
Kirst, Herbert A.; and Truedell, Brenda A., 4,424,344, Cl. 536-16.900.
Kirst, Herbert A.; and Truedell, Brenda A., 4,424,345, Cl. 536-16.900.

El Juri, Pedro: *See*—
Barreiro, Eduardo M.; and El Juri, Pedro, 4,424,136, Cl. 252-41.000.

Elkem a/s: *See*—
Evensen, Knut, 4,424,584, Cl. 373-97.000.

Ellett, James R., to Barlorne Resources Limited. Emergency shut down device. 4,423,748, Cl. 137-315.000.

Ellis, Edward J., to Polymer Technology Corporation. Silicone-containing contact lens material and contact lenses made thereof. 4,424,328, Cl. 526-279.000.

Ellis, Stanley H., to United Technologies Corporation. Adaptive self-correcting control system. 4,423,594, Cl. 60-39.280.

Elscint, Ltd.: *See*—
Inbar, Dan; Gafni, Giora; Grimberg, Ernest; and Koren, Jacob, 4,424,446, Cl. 250-363.00S.

Elsner, Bertram F.; Elsner, Frank, Jr.; and Molison, Robert E., to Elsner Engineering Works, Inc. Roll-wrapping apparatus with label inserter and method. 4,423,584, Cl. 53-415.000.

Elsner Engineering Works, Inc.: *See*—
Elsner, Bertram F.; Elsner, Frank, Jr.; and Molison, Robert E., 4,423,584, Cl. 53-415.000.

Elsner, Frank, Jr.: *See*—
Elsner, Bertram F.; Elsner, Frank, Jr.; and Molison, Robert E., 4,423,584, Cl. 53-415.000.

Elter, Claus; Handel, Hubert; Heiland, Hans-Juergen; Schmitt, Hermann; and Schoening, Josef, to Hochtemperatur-Reaktorbau GmbH. Inspection device with television camera for nuclear installations. 4,424,531, Cl. 358-100.000.

Endress & Hauser, Inc.: *See*—
Moore, Brian E.; and Buis, Richard D., 4,424,404, Cl. 174-52.00R.

Energy Conversion Devices, Inc.: *See*—
Nath, Prem; and Gattuso, David A., 4,423,701, Cl. 118-715.000.

Engel, Wolfhard; Schmidt, Gunther; Trummlitz, Gunther; Eberlein, Wolfgang; Hammer, Rudolf; and Soldato, Piero D., to Karl Thomae GmbH. Pyridobenzodiazepinones, pharmaceutical compositions and method of use thereof. 4,424,222, Cl. 424-250.000.

Engel, Wolfhard: *See*—
Eberlein, Wolfgang; Trummlitz, Gunter; Schmidt, Gunther; Engel, Wolfhard; Hammer, Rudolf; and Del Soldato, Piero, 4,424,226, Cl. 424-263.000.
Schmidt, Gunther; Eberlein, Wolfgang; Engel, Wolfhard; Trummlitz, Gunter; Hammer, Rudolf; and Del Soldato, Piero, 4,424,225, Cl. 424-256.000.

Engelmann, Manfred: *See*—
Klippert, Heinz; Tzschoppe, Eberhard; Paschalis, Stratos; Weinlich, Jurgen; and Engelmann, Manfred, 4,424,301, Cl. 525-53.000.

English, George J.: *See*—
Bouchard, Andre C.; English, George J.; Hall, Harold H., Jr.; and Scholz, John A., 4,424,020, Cl. 431-359.000.

Ennco Inc.: *See*—
Glass, James W., 4,423,716, Cl. 123-557.000.

Enoki, Takashi; Nakamura, Hiroaki; and Nakashima, Fujio, to Hitachi, Ltd. Function presetting circuit for an audio/video recording and reproducing system. 4,424,574, Cl. 364-900.000.

Enoshima, Toshio; and Kuro, Jun-ichi, to Nissan Motor Company, Ltd. Apparatus for preventing a vehicle battery from being overdischarged. 4,424,477, Cl. 320-61.000.

Ensar Corporation: *See*—
Chmela, John F.; Fletcher, Carl R.; and Sarnoff, Norton, 4,423,551, Cl. 30-142.000.

Ensing, Hendrik, to Oce-Nederland B.V. Corona device. 4,424,549, Cl. 361-230.000.

Enuma Chain Manufacturing Co., Ltd.: *See*—
Sato, Yoshimasa, 4,424,050, Cl. 474-231.000.

Envirotech Corporation: *See*—
King, Donald L., 4,424,130, Cl. 210-531.000.

Erdmann, Fritz; and Simon, Ulrich, to Hoechst Aktiengesellschaft. Light-sensitive mixture comprising a naphthoquinonediazidesulfonic acid ester and process for preparing said ester. 4,424,270, Cl. 430-166.000.

Erickson, Floyd B.: *See*—
Hedrick, Ross M.; Woodbrey, James C.; Gabbert, James D.; and Erickson, Floyd B., 4,424,254, Cl. 428-215.000.

Erickson, Robert E., to Dow Chemical Company, The. Absorbent polymer-fiber composites and method for preparing the same. 4,424,247, Cl. 428-138.000.

Ernst, Horst M.: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; and Reith, Walter, 4,423,911, Cl. 308-6.00C.

Ertley, Ernest W.: *See*—
Simon-Bierenbaum, R.; Ertley, Ernest W.; Goetz, Frederick J.; and Tang, David Y., 4,424,396, Cl. 562-456.000.

Escue, Jesse W. Sealing assembly, kit and method for rotatable shafts. 4,423,878, Cl. 277-1.000.

Eskridge, Clifford H.; and Luise, Robert R., to Du Pont de Nemours, E. I., and Company. Acceleration of yarn heat-strengthening process. 4,424,184, Cl. 264-235.000.

Esselman, Walter H.; and Green, Stanley J., to Electric Power Research Institute, Inc. Steam generator or like apparatus including self-cleaning heating element support arrangement. 4,423,703, Cl. 122-510.000.

Essex Group, Inc.: *See*—
Goodrich, Ronald W., 4,424,501, Cl. 335-193.000.
Hall, Thomas E., 4,423,921, Cl. 339-256.0SP.

Etablissement Public de Diffusion dit Telediffusion de France: *See*—
Lorig, Bernard; Rahuel, Jean-Claude; and Roux, Catherine, 4,424,572, Cl. 364-900.000.

Etablissements M. Mueller & Cie.: *See*—
Coetsier, Paul A., 4,423,633, Cl. 73-487.000.

Evans, David A.: *See*—
Davies, Alan R.; MacAuley, Ewen D. M.; Harris, George; Baker, Raymond; Howse, Philip E.; and Evans, David A., 4,423,564, Cl. 43-121.000.

Evans, Peter B.: *See*—
Shumard, Thomas D.; Evans, Peter B.; and Perethian, Charles M., 4,423,901, Cl. 296-78.100.

Evans, Rowland M., to Aviation Electric Ltd. Fuel control system for gas turbine engine. 4,423,592, Cl. 60-39.161.

Evensen, Knut, to Elkem a/s. Electrode holder assembly for self-baking electrodes. 4,424,584, Cl. 373-97.000.

Evertz, Werner: *See—*
Hagedorn, Ferdinand; and Evertz, Werner, 4,424,360, Cl. 548-257.000.

Evrard, Paul: *See—*
Avenel, Michel; Evrard, Paul; and Leca, Jean-Paul, 4,424,137, Cl. 252-182.000.

Exxon Research and Engineering Co.: *See—*
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Kramer, George M., 4,424,387, Cl. 585-743.000.
Lewis, Arthur M.; and Leen, Morris W., 4,424,521, Cl. 346-140.00R.
Murrell, Lawrence L.; Grenoble, Dane C.; and Long, Robert B., 4,424,114, Cl. 208-86.000.
Polizzotti, Richard S.; and Krutenat, Richard C., 4,424,083, Cl. 148-12.00E.

Fag Kugelfischer Georg Schafer & Co.: *See—*
Spielmann, Norbert, 4,423,597, Cl. 60-547.100.

Falconer Glass Industries, Inc.: *See—*
Yates, Leigh T., 4,423,582, Cl. 52-825.000.

Faler, Gary R.; and Loucks, Geroge R., to General Electric Company. Catalyst for synthesizing bisphenol and method for making same. 4,424,283, Cl. 521-32.000.

Farina, Joseph; and Pacelli, Antonio, to Titan Marble & Stone Co. Building structure and component therefor. 4,423,576, Cl. 52-235.000.

Farr, Evelyn: *See—*
Meier, Robert H.; and Farr, Evelyn, 4,423,720, Cl. 128-80.00C.

Farrar, Paul A.; Geffken, Robert M.; and Kroll, Charles T., to International Business Machines Corporation. Method for forming dense multilevel interconnection metallurgy for semiconductor devices. 4,423,547, Cl. 29-571.000.

Farrell, Thomas R., to Shionogi & Co., Ltd. Selective removal and recovery of ammonia and hydrogen sulfide. 4,424,115, Cl. 208-89.000.

Fatigue Technology, Inc.: *See—*
Champoux, Louis A., 4,423,619, Cl. 72-393.000.

Faust, Hans-Joachim: *See—*
Bege, Dietmar; Faust, Hans-Joachim; Puthawala, Anwer; and Stunkel, Helmut, 4,424,149, Cl. 252-629.000.

Faxon, Merle W., to Raytheon Company. Tailbiter and open magnetron protection circuit. 4,424,545, Cl. 361-91.000.

Fekete, Gyorgy: *See—*
Keve, Tibor; Zsadon, Bela; Fekete, Gyorgy; Lorincz, Csaba; Galambos, Janos; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,223, Cl. 424-256.000.

Feldmahr, Walter; and Oberg, Kenneth H., to Acco World Corporation. Sheet lifter. 4,423,976, Cl. 402-80.00L.

Fellinger, Michael W., to Monolithic Systems Corporation. System for phase locking clock signals to a frequency encoded data stream. 4,424,497, Cl. 331-1.00A.

Felt Products Mfg. Co.: *See—*
Kashmerick, Gerald E.; and Rosenquist, Gerald A., 4,423,544, Cl. 29-527.200.

Fennell, Robert D.; Bailey, David F.; and Ganucheau, Charles J., Jr., to Motorola, Inc. Decoder for transmitted message activation code. 4,424,514, Cl. 340-825.520.

Ferring Pharmaceuticals Limited: *See—*
Szelke, Michael; Jones, David M.; and Hallett, Allan, 4,424,207, Cl. 424-177.000.

Fett, Richard H. G.: *See—*
Korchnak, Joseph D.; and Fett, Richard H. G., 4,424,195, Cl. 423-10.000.

Fey, Rainer; Dumbser, Gerhard; and Laun, Arthur, to Fichtel & Sachs AG. Central locking system for lockable entries of buildings or vehicles, particularly motor vehicles. 4,424,548, Cl. 361-152.000.

Fichtel & Sachs AG: *See—*
Fey, Rainer; Dumbser, Gerhard; and Laun, Arthur, 4,424,548, Cl. 361-152.000.

Figueroa, Romulo A. Exercising device. 4,423,863, Cl. 272-73.000.

Filreis, Manuel; and Seim, William J., to Minnesota Mining & Manufacturing Company. Re-enterable service wire splice closure. 4,423,918, Cl. 339-97.00P.

Finch, Robert A. Motor control circuit for radio controlled models. 4,424,470, Cl. 318-6.000.

Firestone Tire & Rubber Company, The: *See—*
Gutierrez, Richard; and Kay, Edward L., 4,424,171, Cl. 524-414.000.
Lohr, Delmar F.; and Schulz, Donald N., 4,424,323, Cl. 526-180.000.

Firsov, Vladimir I.: *See—*
Vairetti, Claude R. L.; Desnoyers, Michel R. L.; Carbonel, Jack; Grammont, Paul D. A.; Pachkov, Arkadyi B.; Grigoriev, Vladimir A.; and Firsov, Vladimir I., 4,424,318, Cl. 526-88.000.

First Champaign Corporation: *See—*
Shumard, Thomas D.; Evans, Peter B.; and Perethian, Charles M., 4,423,901, Cl. 296-78.100.

Fischer, Dietrich: *See—*
Mamet, Manfred; Fischer, Dietrich; Tuemmler, Gerhard; and Niederhuefner, Detlev, 4,424,490, Cl. 324-424.000.

Fischer, Hermann, to M.A.N.-ROLAND Druckmaschinen Aktiengesellschaft. Rotary sheet offset printing machine. 4,423,677, Cl. 101-232.000.

Fisons Limited: *See—*
Bantick, John R.; Fuher, John; Hardern, David N.; and Lee, Thomas B., 4,424,231, Cl. 424-274.000.
Young, David M., 4,423,724, Cl. 128-203.150.

Fleck, Adolf; Ketterer, Hans; and Pietsch, Gerald, to Agfa-Gevaert Aktiengesellschaft. Locking arrangement for guides in photographic material developer apparatus. 4,423,946, Cl. 354-319.000.

Fleming, Joseph P.: *See—*
Villa, Jose L.; Sinka, Joseph V.; Marcellia, Alphonso W.; and Fleming, Joseph P., 4,424,074, Cl. 106-90.000.

Fletcher, Carl R.: *See—*
Chmela, John F.; Fletcher, Carl R.; and Sarnoff, Norton, 4,423,551, Cl. 30-142.000.

Flex-Kleen Corporation: *See—*
Robinson, James W., 4,424,070, Cl. 55-378.000.

Fol, Artur, to Repa Feinstanzwerk GmbH. Retightener for automatic safety belt roll-up devices. 4,423,846, Cl. 242-107.000.

Fondse, Pieter J.: *See—*
den Toonder, Pieter; Fondse, Pieter J.; Seltenrijch, Johannes; de Jong, Cornelis A.; and de Koningh, Tom, 4,424,532, Cl. 358-120.000.

Foote, Allen M. Grand piano humidifier. 4,423,658, Cl. 84-453.000.

Ford Motor Company: *See—*
Chattha, Mohinder S., 4,424,334, Cl. 528-77.000.
Collen, John W., 4,424,471, Cl. 318-138.000.

Forgach, Lilla: *See—*
Keve, Tibor; Zsadon, Bela; Fekete, Gyorgy; Lorincz, Csaba; Galambos, Janos; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,223, Cl. 424-256.000.
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Gyulai, Zsuzsanna; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,224, Cl. 424-256.000.

Foseco International Limited: *See—*
Trinkl, Gerd; and Schopp, Helmut, 4,423,762, Cl. 164-37.000.

Fox, Rita T.: *See—*
Moniot, Jerome L.; Fox, Rita T.; Sprague, Peter W.; and Haslanger, Martin F., 4,424,376, Cl. 560-120.000.

Francis, Paul T. Fluid-driven power generator. 4,424,452, Cl. 290-55.000.

Franco, Simone; and Valsecchi, Alberto, to Minnesota Mining and Manufacturing Company. Subbing polyester support bases and photographic film comprising said improved support bases. 4,424,273, Cl. 430-529.000.

Franek, Josef T.; Porucznik, Paul; Serby, Peter H.; and Tod, Christopher J. N., to Metal Box Limited. Containers. 4,423,823, Cl. 220-77.000.

Frank, Lee F.: *See—*
Lambeth, David N.; Lee, James K.; and Frank, Lee F., 4,423,934, Cl. 354-412.000.

Franz Plasser Bahnbaumaschinen-Industrie Gesellschaft m.b.H.: *See—*
Theurer, Josef; Bock, Gernot; and Ganguly, Mihir, 4,423,684, Cl. 104-7.00R.

Frazier, Gary A.; and Johnson, Milo R., to Texas Instruments Incorporated. Method and fixture for coupling optical fibers. 4,423,923, Cl. 350-96.150.

Frazier, William C.; and Charlton, Robert S., to MacMillan Bloedel Limited. Refiner plates. 4,423,845, Cl. 241-261.300.

Frederick, Charles V. Heat exchanger. 4,423,771, Cl. 165-151.000.

Fredriksson, Ove R.: *See—*
Almgren, Per H. I.; Fredriksson, Ove R.; and Nasretdin, Adil M., 4,424,430, Cl. 219-10.55F.

Freitag, Dieter: *See—*
Idel, Karsten; Ostlinning, Edgar; Freitag, Dieter; and Bottenbruch, Ludwig, 4,424,339, Cl. 528-388.000.

Friedman, Arthur W.: *See—*
Magee, Thomas A.; Battershell, Robert D.; Limpel, Lawrence E.; Ho, Andrew W.; Friedman, Arthur W.; Corkins, H. Glenn; Brand, William W.; Buchman, Russell; Storace, Louis; and Osgood, Edmond R., 4,424,213, Cl. 424-184.000.

Friedrich, Maria S.: *See—*
Grasselli, Robert K.; Suresh, Dev D.; and Friedrich, Maria S., 4,424,141, Cl. 502-205.000.

Frisch, David C.; and Weber, Wilhelm, to Kollmorgen Technologies Corporation. Radiation stress relieving of polymer articles. 4,424,095, Cl. 156-629.000.

Fritzsche Dodge & Olcott Inc.: *See—*
Willis, Brian J.; Britten-Kelley, Michael R.; and Hansen, Odd, 4,424,146, Cl. 252-522.00R.

Frohning, Carl D.: *See—*
Cornils, Boy; Frohning, Carl D.; Diekhaus, Gerhard; Wiebus, Ernst; and Bahrmann, Helmut, 4,424,383, Cl. 568-902.000.

Fuher, John: *See—*
Bantick, John R.; Fuher, John; Hardern, David N.; and Lee, Thomas B., 4,424,231, Cl. 424-274.000.

Fuji Electric Company, Ltd.: *See—*
Tanaka, Nobuyasu; Tominaga, Hiroshi; Fujita, Minoru; Tanaka, Hajime; Hattori, Takahisa; Yasuda, Akira; and Kato, Shigeya, 4,423,828, Cl. 221-129.000.

Fuji Xerox Co., Ltd.: *See—*
Ozawa, Takashi, 4,424,590, Cl. 382-68.000.

Fujii, Toshihiro: *See—*
Kitahara, Shizuo; Fujii, Toshihiro; and Sugi, Nagatoshi, 4,424,306, Cl. 525-131.000.

Fujimura, Naoto: *See—*
Kondo, Hideyo; and Fujimura, Naoto, 4,424,267, Cl. 430-66.000.

Fujioka, Takeo: *See—*
Okigami, Noboru; Sekiguchi, Yoshitoshi; Hayasaka, Hiroshi; Koyama, Toshitsugu; Fujioka, Takeo; and Yoshimitsu, Takeshi, 4,424,017, Cl. 431-3.000.
Fujioka, Yoshiharu; and Takei, Shushi, to Tokyo Shibaura Denki Kabushiki Kaisha. Composite magnetic head structure and process for manufacturing the same. 4,423,550, Cl. 29-603.000.
Fujita, Minoru: *See—*
Tanaka, Nobuyasu; Tominaga, Hiroshi; Fujita, Minoru; Tanaka, Hajime; Hattori, Takahisa; Yasuda, Akira; and Kato, Shigeya, 4,423,828, Cl. 221-129.000.
Fujitsu Fanuc Ltd.: *See—*
Imazeki, Ryoji; Fukuyama, Hiroomi; and Kagawa, Yoshimasa, 4,424,569, Cl. 364-474.000.
Imazeki, Ryoji; and Yamazaki, Etsuo, 4,424,570, Cl. 364-520.000.
Inaba, Hajimu; and Sakakibara, Shinsuke, 4,423,998, Cl. 414-730.000.
Fujitsu Limited: *See—*
Fukushima, Toshitaka; Koyama, Kazumi; Ueno, Kouji; Miyamura, Tamio; and Kawabata, Yuichi, 4,424,582, Cl. 365-189.000.
Mimura, Takashi, 4,424,525, Cl. 357-23.000.
Satoh, Takashi; and Shimada, Isamu, 4,424,588, Cl. 382-48.000.
Fujiu, Takamitsu: *See—*
Ogino, Makoto; Fujiu, Takamitsu; Futami, Toshihiko; Kariya, Michio; and Ichimura, Takeo, 4,424,037, Cl. 433-173.000.
Fukuda, Hideo: *See—*
Sasaki, Hideyuki; Nakazawa, Toru; Kato, Yoshiaki; Fukuda, Hideo; Kamezaki, Yasushi; and Fushida, Akira, 4,424,269, Cl. 430-94.000.
Fukukita, Hiroshi: *See—*
Yano, Tsutomu; Hayakawa, Yoshihiro; Tachita, Ryobun; Irioka, Kazuyoshi; Fukukita, Hiroshi; and Fukumoto, Akira, 4,423,737, Cl. 128-661.000.
Fukuma, Daizo; and Okamoto, Hisao, to Nissan Motor Co., Ltd. Composite solid propellant containing FeOOH as burning rate modifier. 4,424,085, Cl. 149-19.100.
Fukumoto, Akira: *See—*
Yano, Tsutomu; Hayakawa, Yoshihiro; Tachita, Ryobun; Irioka, Kazuyoshi; Fukukita, Hiroshi; and Fukumoto, Akira, 4,423,737, Cl. 128-661.000.
Fukuoka, Norio, to Olympus Optical Company Ltd. Acoustic reproducing apparatus. 4,424,416, Cl. 381-24.000.
Fukuoka, Tatsuhiko: *See—*
Takenaka, Akira; and Fukuoka, Tatsuhiko, 4,423,879, Cl. 277-96.100.
Fukushima, Toshitaka; Koyama, Kazumi; Ueno, Kouji; Miyamura, Tamio; and Kawabata, Yuichi, to Fujitsu Limited. Semiconductor memory device. 4,424,582, Cl. 365-189.000.
Fukuyama, Hiroomi: *See—*
Imazeki, Ryoji; Fukuyama, Hiroomi; and Kagawa, Yoshimasa, 4,424,569, Cl. 364-474.000.
Funaki, Kazuo, to Tokyo Shibaura Denki Kabushiki Kaisha. Washing apparatus. 4,423,608, Cl. 68-23.300.
Funakoshi, Satoshi: *See—*
Ohmura, Takao; Hirao, Yutaka; and Funakoshi, Satoshi, 4,424,206, Cl. 424-101.000.
Furukawa Electric Co., Ltd., The: *See—*
Nojiri, Akio; Sawasaki, Takashi; and Koreeda, Toshio, 4,424,293, Cl. 524-101.000.
Furuya, Mikihito; and Daitoku, Koichi, to Nippon Kogaku K.K. Camera with selectable electromagnetic and mechanical shutter release. 4,423,942, Cl. 354-266.000.
Fushida, Akira: *See—*
Sasaki, Hideyuki; Nakazawa, Toru; Kato, Yoshiaki; Fukuda, Hideo; Kamezaki, Yasushi; and Fushida, Akira, 4,424,269, Cl. 430-94.000.
Futami, Toshihiko: *See—*
Ogino, Makoto; Fujiu, Takamitsu; Futami, Toshihiko; Kariya, Michio; and Ichimura, Takeo, 4,424,037, Cl. 433-173.000.
G.A.L. Manufacturing Corporation: *See—*
Glaser, Walter; and Glaser, Herbert P., 4,423,799, Cl. 187-57.000.
G and G Products, Inc.: *See—*
Preston, Seaton T.; Greenwald, Frank L.; Eich, William D.; and Berger, Robert, 4,423,945, Cl. 354-313.000.
Gabbay, Shlomo, to Shelhigh Inc. Atriotomy button and implantation device. 4,423,730, Cl. 128-334.00R.
Gabbert, James D.: *See—*
Hedrick, Ross M.; Woodbrey, James C.; Gabbert, James D.; and Erickson, Floyd B., 4,424,254, Cl. 428-215.000.
GAF Corporation: *See—*
Barabas, Eugene S., 4,424,079, Cl. 134-4.000.
Gafni, Giora: *See—*
Inbar, Dan; Gafni, Giora; Grimberg, Ernest; and Koren, Jacob, 4,424,446, Cl. 250-363.00S.
Galambos, Janos: *See—*
Keve, Tibor; Zsadon, Bela; Fekete, Gyorgy; Lorincz, Csaba; Galambos, Janos; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,223, Cl. 424-256.000.
Gallenkamp, Bernd: *See—*
Colln, Reimer; Gallenkamp, Bernd; and Diehr, Hans-Joachim, 4,424,168, Cl. 260-465.00D.
Gang-Nail Systems, Inc.: *See—*
Moyer, Anthony M.; and Kelly, Robert H., 4,423,615, Cl. 72-326.000.
Ganguly, Mihir: *See—*
Theurer, Josef; Bock, Gernot; and Ganguly, Mihir, 4,423,684, Cl. 104-7.00R.
Ganucheau, Charles J., Jr.: *See—*
Fennell, Robert D.; Bailey, David F.; and Ganucheau, Charles J., Jr., 4,424,514, Cl. 340-825.520.
Garcia, Ramon D.: *See—*
Petrick, Stanley W.; and Garcia, Ramon D., 4,423,605, Cl. 62-467.00R.
Garcia, Ricardo A. M., to Trimak Equipment Ltd. Apparatus for paying off wire from a bobbin. 4,423,588, Cl. 57-127.500.
Garnett, Fredrick W.: *See—*
Kelly, James C.; and Garnett, Fredrick W., 4,423,692, Cl. 112-274.000.
Garrett Corporation, The: *See—*
Beck, William H., 4,423,794, Cl. 180-165.000.
Garrison, John D. Solar collector panel and energy shield. 4,423,718, Cl. 126-438.000.
Gattuso, David A.: *See—*
Nath, Prem; and Gattuso, David A., 4,423,701, Cl. 118-715.000.
Gay, Michael J., to Motorola, Inc. Switched delay circuit. 4,424,462, Cl. 307-603.000.
Gaynor, John C.: *See—*
Palmer, Jay W.; and Gaynor, John C., 4,424,196, Cl. 423-166.000.
Gebel, Rudolf; and Schmidt, Lothar, to Siemens Aktiengesellschaft. Vacuum switch. 4,424,427, Cl. 200-144.00B.
Geffken, Robert M.: *See—*
Farrar, Paul A.; Geffken, Robert M.; and Kroll, Charles T., 4,423,547, Cl. 29-571.000.
Gehrke, Gunter: *See—*
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General Electric Company: *See—*
Castonguay, Roger N., 4,424,425, Cl. 200-50.0AA.
Chung, Rack H., 4,424,157, Cl. 260-239.30R.
Faler, Gary R.; and Loucks, Geroge R., 4,424,283, Cl. 521-32.000.
Liu, Ping Y., 4,424,303, Cl. 525-67.000.
Mullerman, Ferdinand H., 4,424,476, Cl. 320-36.000.
Payne, Thomas R.; and Chou, Robert V., 4,424,439, Cl. 219-501.000.
Steigerwald, Robert L., 4,424,557, Cl. 363-98.000.
Titus, Charles H.; and Zlupko, John E., 4,424,547, Cl. 361-127.000.
General Foods Inc.: *See—*
Grealy, Jennifer M.; Maurice, Terrence J.; and Myers, Chester D., 4,424,151, Cl. 260-123.500.
General Motors Corporation: *See—*
Aldridge, Fredrick A.; and Schertz, Burtron D., 4,424,494, Cl. 330-278.000.
Anderson, Stanley E., 4,424,014, Cl. 418-104.000.
Choly, Mitchell, 4,423,999, Cl. 414-744.00A.
Crawford, Ray V., 4,423,904, Cl. 297-341.000.
Howell, Gregory L.; Smith, Oscar H.; and Townsend, Don G., 4,424,263, Cl. 429-88.000.
King, Dallas E., 4,423,549, Cl. 29-597.000.
Kuo, Hong-Hsiang, 4,423,688, Cl. 110-245.000.
Malloy, John D., 4,423,803, Cl. 192-3.290.
Palma, James D., 4,423,841, Cl. 239-585.000.
Palma, James D., 4,423,842, Cl. 239-585.000.
Palma, James D., 4,423,843, Cl. 239-585.000.
Winchell, Frank J.; Williams, Jerry K.; and Irwin, C. Clark, 4,423,795, Cl. 180-215.000.
Genma, Kazutoshi; and Sasaki, Akio, to Hitachi, Ltd. Data processing system having plural address arrays. 4,424,562, Cl. 364-200.000.
Genske, Roger P.: *See—*
Christensen, Ronald C.; Genske, Roger P.; Kester, Dennis E.; and Ossian, William F., 4,424,256, Cl. 428-347.000.
Gentry, Larry L.: *See—*
Panicker, Narayana N.; Gentry, Larry L.; and Moss, Herbert H., 4,423,984, Cl. 405-195.000.
Geolograph Company, The: *See—*
Grade, Lanny V.; and Corry, Stuart E., 4,423,639, Cl. 73-862.420.
Gerberding, Karl: *See—*
Hambrecht, Juergen; Brandstetter, Franz; Echte, Adolf; Gerberding, Karl; and Heckmann, Walter, 4,424,304, Cl. 525-68.000.
Gergis, Isoris S.; and MacNeal, Bruce E., to Rockwell International Corporation. Conductorless bubble domain switch. 4,424,577, Cl. 365-36.000.
Gerth, William V. Handle operated incliner chair. 4,423,903, Cl. 297-89.000.
Gevers, David E., to Talbert Manufacturing, Inc. Booster axle connection system for a trailer assembly. 4,423,884, Cl. 280-405.00A.
Ghosh, Sambhunath: *See—*
Klass, Donald L.; and Ghosh, Sambhunath, 4,424,064, Cl. 48-197.00A.
Giesecke, Heinz, to Bayer Aktiengesellschaft. Process for the preparation of cationic hydrazone dyestuffs. 4,424,349, Cl. 542-417.000.
Giguere, Marcel L. Reconditioning soils contaminated by crude oils or other refined petroleum products. 4,424,081, Cl. 134-10.000.
Gilb, Tyrell T., to Simpson Strong-Tie Company, Inc. Single element slope and skew hanger. 4,423,977, Cl. 403-232.100.
Glaser, Herbert P.: *See—*
Glaser, Walter; and Glaser, Herbert P., 4,423,799, Cl. 187-57.000.
Glaser, Walter; and Glaser, Herbert P., to G.A.L. Manufacturing Corporation. Vehicle door lock for limiting door opening to specified vehicle positions. 4,423,799, Cl. 187-57.000.
Glass, James W., to Ennco Inc. Fuel system for internal combustion engines. 4,423,716, Cl. 123-557.000.

Godfroid, Henri, to CGEE Alsthom. Apparatus for controlling a static AC/AC thyristor converter which feeds a synchronous rotating machine at a variable frequency. 4,424,475, Cl. 318-803.000.

Goebel, Hermann: *See*—
Mennicke, Winfried; and Goebel, Hermann, 4,424,152, Cl. 260-148.000.

Goethlich, Lutz: *See*—
Barzynski, Helmut; Hartmann, Heinrich; Lautenbach, Dieter; Osterloh, Rolf; Goethlich, Lutz; and Heil, Guenter, 4,424,314, Cl. 525-454.000.

Goetter, Erwin H.; and Siter, Ralph B., to Preformed Line Products Company. Splice case end closure assembly and splice case including same. 4,424,412, Cl. 174-92.000.

Goetz, Frederick J.: *See*—
Simon-Bierenbaum, R.; Ertley, Ernest W.; Goetz, Frederick J.; and Tang, David Y., 4,424,396, Cl. 562-456.000.

Goetz, Norbert; Mangold, Dietrich; and Wahl, Josef, to BASF Aktiengesellschaft. Preparation of pyrazoles. 4,424,364, Cl. 548-373.000.

Gold, Nicholas, to Polaroid Corporation. Photographic film assemblage having a non-lighttight film withdrawal opening. 4,423,943, Cl. 354-275.000.

Goldberg, Ira B.: *See*—
Ho, William W.; Harker, Alan B.; Goldberg, Ira B.; and Chung, Kwang E., 4,423,623, Cl. 73-61.00R.

Goldsmith, Burton, to Baker International Corporation. Concentric tubing separation joint. 4,423,778, Cl. 166-134.000.

Golstein, Jean; Coppens, Guillaume; and Davoine, Jean-Claude, to Solvay & Cie. Process for removing residual vinyl chlorine from the polymer. 4,424,340, Cl. 528-500.000.

Gomi, Tsuguo, to Kabushiki Kaisha Suwa Seikosha. Multi-layer display device. 4,423,929, Cl. 350-335.000.

Gongwer, Calvin A., to Bendix Corporation, The. Propulsion system for an underwater vehicle. 4,424,042, Cl. 440-44.000.

Goodrich, Ronald W., to Essex Group, Inc. Electromagnetic contactor having improved contact structure. 4,424,501, Cl. 335-193.000.

Goodspeed, Byron L. Furnace air port cleaner. 4,423,533, Cl. 15-246.000.

Goodyear Aerospace Corporation: *See*—
Boyd, Hugh; and Kane, John J., 4,423,832, Cl. 222-203.000.

Goodyear Tire & Rubber Company, The: *See*—
Smith, Richard R.; and Sartorelli, David W., 4,424,337, Cl. 528-274.000.
Throckmorton, Morford C.; and Suchma, Charles J., 4,424,324, Cl. 526-220.000.

Gordon, Irwin: *See*—
Shahbender, Babah; Wendt, Frank S.; Gordon, Irwin; and Gries, Robert J., 4,424,469, Cl. 315-411.000.

Gordon, Robert A., to Eastman Kodak Company. Vapor deposit contact printing method and apparatus. 4,423,956, Cl. 355-110.000.

Gorman, Robert H., to American Robot Corporation. Drive apparatus for an industrial robot. 4,424,473, Cl. 318-568.000.

Gorog, Peter: *See*—
Benko, Pal; Kovanyi, Gyorgyi nee Lax; Timar, Judit nee Gergely; Sigmond, Maria nee Lakatos; Petocz, Lujza; Gorog, Peter; Kosoczky, Ibolya; Szirt, Eniko nee Kiszelly; and Toncsev, Hristone, 4,424,351, Cl. 542-439.000.

Gorski, Alan: *See*—
Braunlin, Walter A.; Gorski, Alan; Jachnig, Leo J.; Moskal, Clifford J.; Naylor, Joseph D.; Parimi, Krishnia; and Ward, John V., 4,424,108, Cl. 208-8.0LE.

Goto, Satoshi: *See*—
Kurihara, Seiji; Goto, Satoshi; Wada, Tsuneo; Kinoshita, Akira; Takei, Yoshiaki; Akashi, Naoko; and Nomori, Hiroyuki, 4,424,266, Cl. 430-59.000.

Gould, Francis E.; and Johnston, Christian W., to Tyndale Plains-Hunter, Ltd. Surgical implants formed of polyurethane diacrylate compositions. 4,424,305, Cl. 525-127.000.

Gould, Larry L. Splash shield and cuttings guard for glass router. 4,423,568, Cl. 51-72.00R.

Grade, Lanny V.; and Corry, Stuart E., to Geolograph Company, The. Apparatus for adjusting and indicating the tension in a guy line. 4,423,639, Cl. 73-862.420.

Grammont, Paul D. A.: *See*—
Vairetti, Claude R. L.; Desnoyers, Michel R. L.; Carbonel, Jack; Grammont, Paul D. A.; Pachkov, Arkadyi B.; Grigoriev, Vladimir A.; and Firsov, Vladimir I., 4,424,318, Cl. 526-88.000.

Grandjean, Darrell J.: *See*—
Decker, Donald L.; Porteus, James O.; and Grandjean, Darrell J., 4,423,650, Cl. 82-1.00C.

Grasselli, Robert K.; Suresh, Dev D.; and Friedrich, Maria S., to Standard Oil Co., The. Process for producing an oxide complex catalyst containing molybdenum and one of bismuth and tellurium. 4,424,141, Cl. 502-205.000.

Grassi, Gino; Cammilli, Leonardo; and Alcidi, Luciano. Relay circuit for cardiac pacemaker implant. 4,423,733, Cl. 128-419.0PG.

Gray, Don N., to Owens-Illinois, Inc. Polymeric contact lens materials with high oxygen permeability. 4,423,930, Cl. 351-160.00R.

Gray, Richard W. Engine electrical system test device. 4,424,489, Cl. 324-396.000.

Gray, Robert C. Suture installation instrument. 4,423,729, Cl. 128-334.00R.

Grealy, Jennifer M.; Maurice, Terrence J.; and Myers, Chester D., to General Foods Inc. Heat gellable protein isolate. 4,424,151, Cl. 260-123.500.

Green Cross Corporation, The: *See*—
Ohmura, Takao; Hirao, Yutaka; and Funakoshi, Satoshi, 4,424,206, Cl. 424-101.000.

Green, Stanley J.: *See*—
Easelman, Walter H.; and Green, Stanley J., 4,423,703, Cl. 122-510.000.

Greenberg, Edward I.: *See*—
Ivanhoe, Jeffrey, 4,423,539, Cl. 24-143.00A.

Greene, Ronald K., to 50 States Distributing Company. Tape recorder with digital automatic level control. 4,424,538, Cl. 360-68.000.

Greenwald, Frank L.: *See*—
Preston, Seaton T.; Greenwald, Frank L.; Eich, William D.; and Berger, Robert, 4,423,945, Cl. 354-313.000.

Grenoble, Dane C.: *See*—
Murrell, Lawrence L.; Grenoble, Dane C.; and Long, Robert B., 4,424,114, Cl. 208-86.000.

Gries, Robert J.: *See*—
Shahbender, Babah; Wendt, Frank S.; Gordon, Irwin; and Gries, Robert J., 4,424,469, Cl. 315-411.000.

Griessen, Jean-Bernard; and Cleusix, Willy, to Ebauches Electroniques S.A. Timepiece with alarm and time setting device. 4,423,964, Cl. 368-74.000.

Grigoriev, Vladimir A.: *See*—
Vairetti, Claude R. L.; Desnoyers, Michel R. L.; Carbonel, Jack; Grammont, Paul D. A.; Pachkov, Arkadyi B.; Grigoriev, Vladimir A.; and Firsov, Vladimir I., 4,424,318, Cl. 526-88.000.

Grillot, Ronald E.: *See*—
Cooper, Dale E.; Grillot, Ronald E.; Quick, Gary K.; and Smith, Kevin R., 4,423,920, Cl. 339-252.00R.

Grimberg, Ernest: *See*—
Inbar, Dan; Gafni, Giora; Grimberg, Ernest; and Koren, Jacob, 4,424,446, Cl. 250-363.00S.

Gromov, Viktor I.: *See*—
Krivda, Leonid T.; Pshenishnjuk, Alexandr S.; Gromov, Viktor I.; and Schukin, Vladimir K., 4,423,614, Cl. 72-115.000.

Gross National Products, Inc.: *See*—
Hart, Judy L.; and Munday, William A., 4,423,610, Cl. 70-18.000.

Growden, Ina S. J.: *See*—
Growden, Murray W., 4,423,790, Cl. 172-750.000.

Growden, Murray W., to Growden, Philip A.; Growden, Ina S. J.; Lang, Sandra J.; and Land, Robert B., part interest to each. Cultivator share with interengaging cutting blade and mounting portions. 4,423,790, Cl. 172-750.000.

Growden, Philip A.: *See*—
Growden, Murray W., 4,423,790, Cl. 172-750.000.

Growth and Development Research, Inc.: *See*—
Howe, Raymond P., 4,424,032, Cl. 433-19.000.

Gruber, Werner, to Henkel Kommanditgesellschaft auf Aktien. Stable, anaerobically-hardening adhesives containing mixed amine oxide/HN-acidic compound initiators. 4,424,331, Cl. 526-301.000.

Gruber, William P.: *See*—
Bell, Lon E.; and Gruber, William P., 4,424,422, Cl. 219-205.000.

Gruger, Christian, to Veb Polygraph Leipzig Kombinat Fuer Polygraphische Maschinen und Ausruestungen. Drive system for blades for folding flat material. 4,424,052, Cl. 493-444.000.

Grychtol, Klaus: *See*—
Baumann, Hans; and Grychtol, Klaus, 4,424,153, Cl. 260-149.000.

GTE Laboratories Incorporated: *See*—
Sarin, Vinod K.; and Buljan, Sergej-Tomislav, 4,424,066, Cl. 51-295.000.

GTE Products Corporation: *See*—
Bouchard, Andre C.; English, George J.; Hall, Harold H., Jr.; and Scholz, John A., 4,424,020, Cl. 431-359.000.

GTE Sylvania Canada Limited: *See*—
Nattel, William, 4,424,405, Cl. 174-53.000.

Guarino, John P.: *See*—
McCarty, William H.; Guarino, John P.; and Nagy, Frank A., 4,424,100, Cl. 204-159.150.

Guigan, Jean. Automatic resetting apparatus for storing and dispensing objects. 4,423,827, Cl. 221-129.000.

Gulf & Western Manufacturing Company: *See*—
Derr, Ralph, Jr., 4,423,991, Cl. 409-200.000.

Gulla, Michael: *See*—
Taylor, Paul; and Gulla, Michael, 4,424,315, Cl. 525-501.000.

Gumb, Beverley W. T.: *See*—
Chaput, Guy J.; Sich, Edward M.; and Gumb, Beverley W. T., 4,424,419, Cl. 179-111.00E.

Gurubatham, Vincent P., to Whirlpool Corporation. Turntable drive for a microwave oven. 4,424,431, Cl. 219-10.55F.

Gutierrez, Richard; and Kay, Edward L., to Firestone Tire & Rubber Company, The. Aqueous storage systems for storage of ground guayule plant material. 4,424,171, Cl. 524-414.000.

Guzik, Frederick F.; Pamer, Steven E.; and Richter, Sidney B., to PPG Industries, Inc. Process of preparation of substituted diphenyl ethers. 4,424,393, Cl. 560-21.000.

Gyulai, Zsuzsanna: *See*—
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Gyulai, Zsuzsanna; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,224, Cl. 424-256.000.

Haag, James W., to Texaco Inc. Method for plugging a well and bridge plug. 4,423,783, Cl. 166-382.000.

Haar, Lucas H., to ITT Industries, Inc. Mechanically controllable power booster. 4,423,665, Cl. 91-369.00B.

Haase, Jaroslav; and Palmberg, Roger, to Ciga-Geigy Corporation. Cationic adsorption agent. 4,424,284, Cl. 521-36.000.

Haberle, Friedrich: *See*—
Kress, Dieter; and Haberle, Friedrich, 4,423,989, Cl. 408-197.000.
Hackett, Charles D.; and Bray, James R., to Combustion Engineering, Inc. Welded tube to wall junction. 4,423,890, Cl. 285-189.000.
Hafner, V. Walter: *See*—
Morris, Earl L.; and Hafner, V. Walter, 4,423,527, Cl. 4-288.000.
Hagedorn, Ferdinand; and Evertz, Werner, to Bayer Aktiengesellschaft. Process for the preparation of fused 1,2,3-triazoles. 4,424,360, Cl. 548-257.000.
Haines, Robert C., to Dunlop Limited. Games racket frame. 4,423,869, Cl. 273-73.00C.
Hakaridani, Mitsuhiro: *See*—
Suzuki, Hitoshi; Togawa, Fumio; and Hakaridani, Mitsuhiro, 4,424,518, Cl. 346-75.000.
Hall, Harold H., Jr.: *See*—
Bouchard, Andre C.; English, George J.; Hall, Harold H., Jr.; and Scholz, John A., 4,424,020, Cl. 431-359.000.
Hall, Laurance D.; and Yalpani, Mansur, to Canadian Patents and Development Ltd. Derivatives of chitins, chitosans and other polysaccharides. 4,424,346, Cl. 536-20.000.
Hall, Thomas E., to Essex Group, Inc. Tab receptacle terminal. 4,423,921, Cl. 339-256.0SP.
Haller, Jack R.; and Demopoulos, Dino M., to Murray Machinery, Inc. Disc type wood chipper knife having position adjusting serrations. 4,423,758, Cl. 144-176.000.
Hallett, Allan: *See*—
Szelke, Michael; Jones, David M.; and Hallett, Allan, 4,424,207, Cl. 424-177.000.
Halliburton Company: *See*—
Carter, Ernest E., Jr., 4,423,754, Cl. 138-93.000.
Smith, Harry D., Jr.; and Arnold, Dan M., 4,424,444, Cl. 250-270.000.
Halpern, Yuval, to Borg-Warner Chemicals, Inc. 5,5-Bis-(Bromomethyl)-2-hydroxy-2-oxo-1,3,2-dioxaphosphorinanes and process for preparing same. 4,424,172, Cl. 260-937.000.
Hamada, Kazuhiko; Yoshihara, Hiroshi; and Suzukamo, Gohfu, to Sumitomo Chemical Company, Limited. Process for producing 5-halomethylfurfural. 4,424,390, Cl. 549-483.000.
Hambrecht, Juergen; Brandstetter, Franz; Echte, Adolf; Gerberding, Karl; and Heckmann, Walter, to BASF Aktiengesellschaft. Thermoplastic molding materials. 4,424,304, Cl. 525-68.000.
Hammer, Rudolf: *See*—
Eberlein, Wolfgang; Trummlitz, Gunter; Schmidt, Gunther; Engel, Wolfhard; Hammer, Rudolf; and Del Soldato, Piero, 4,424,226, Cl. 424-263.000.
Engel, Wolfhard; Schmidt, Gunther; Trummlitz, Gunther; Eberlein, Wolfgang; Hammer, Rudolf; and Soldato, Piero D., 4,424,222, Cl. 424-250.000.
Schmidt, Gunther; Eberlein, Wolfgang; Engel, Wolfhard; Trummlitz, Gunter; Hammer, Rudolf; and Del Soldato, Piero, 4,424,225, Cl. 424-256.000.
Hamprecht, Rainer; and Leverenz, Klaus, to Bayer Aktiengesellschaft. Halo-substituted amino-and substituted-sulphonamido-containing azo dyestuffs. 4,424,156, Cl. 260-205.000.
Handel, Hubert: *See*—
Elter, Claus; Handel, Hubert; Heiland, Hans-Juergen; Schmitt, Hermann; and Schoening, Josef, 4,424,531, Cl. 358-100.000.
Hanley, Edward J.: *See*—
DeWitt, David P.; Hannemann, Robert E.; Robinson, Barrett F.; and Hanley, Edward J., 4,423,736, Cl. 128-633.000.
Hanley, Gerard L.: *See*—
Viola, Raymond D.; and Hanley, Gerard L., 4,424,500, Cl. 333-128.000.
Hannemann, Robert E.: *See*—
DeWitt, David P.; Hannemann, Robert E.; Robinson, Barrett F.; and Hanley, Edward J., 4,423,736, Cl. 128-633.000.
Hansen, Gorm P. Self-centering dental face-bow. 4,424,035, Cl. 433-73.000.
Hansen, Odd: *See*—
Willis, Brian J.; Britten-Kelley, Michael R.; and Hansen, Odd, 4,424,146, Cl. 252-522.00R.
Hanson, Donald O.; and Sherk, Fred T., to Phillips Petroleum Company. Separation of solid polymers and liquid diluent. 4,424,341, Cl. 528-501.000.
Hanson, Robert M., to Henes Products Corp. Gas generator with regulated current source. 4,424,105, Cl. 204-228.000.
Hanyu, Susumu; Koike, Mikio; and Hara, Kazumasa, to Janome Sewing Machine Co. Ltd. Feed dog structure of sewing machines. 4,423,693, Cl. 112-324.000.
Hara, Kazumasa: *See*—
Hanyu, Susumu; Koike, Mikio; and Hara, Kazumasa, 4,423,693, Cl. 112-324.000.
Harata, Mituo; Katsura, Masaki; Uno, Shigeki; Hiraki, Hideaki; and Shiratori, Masayuki, to Tokyo Shibaura Denki Kabushiki Kaisha. Moisture sensitive element. 4,424,508, Cl. 338-35.000.
Hardee, Eldred V., to Hardee Manufacturing Company, Inc. Bar feed centrically guiding device for lathe apparatus. 4,423,651, Cl. 82-2.500.
Hardee Manufacturing Company, Inc.: *See*—
Hardee, Eldred V., 4,423,651, Cl. 82-2.500.
Hardern, David N.: *See*—
Bantick, John R.; Fuher, John; Hardern, David N.; and Lee, Thomas B., 4,424,231, Cl. 424-274.000.
Hardin, Tommy G.; and Vrieland, Bruce C., to Western Electric Company, Inc. Telecommunication cables and methods of manufacturing same. 4,423,589, Cl. 57-293.000.
Hardinge Brothers, Inc.: *See*—
Eaton, Brian M., 4,423,993, Cl. 414-17.000.
Hardman, Harley F.: *See*—
Alford, Harvey E.; and Hardman, Harley F., 4,424,135, Cl. 252-8.55D.
Harker, Alan B.: *See*—
Ho, William W.; Harker, Alan B.; Goldberg, Ira B.; and Chung, Kwang E., 4,423,623, Cl. 73-61.00R.
Harper, James M. E.; and Kleinsasser, Alan W., to International Business Machines Corporation. Single axis combined ion and vapor source. 4,424,104, Cl. 204-192.00N.
Harris Corporation: *See*—
Taylor, Wilson E., 4,424,530, Cl. 358-96.000.
Harris, George: *See*—
Davies, Alan R.; MacAuley, Ewen D. M.; Harris, George; Baker, Raymond; Howse, Philip E.; and Evans, David A., 4,423,564, Cl. 43-121.000.
Hart, Judy L.; and Munday, William A., to Gross National Products, Inc. Shackle lock. 4,423,610, Cl. 70-18.000.
Hart, Rien 'T, to XRG International, Inc. High flash point additives or compositions for gasoline and diesel fuels. 4,424,063, Cl. 44-56.000.
Hartig, Martval J., to Du Pont de Nemours, E. I., and Company. Falling film evaporator. 4,424,098, Cl. 159-1.00W.
Hartland Products Company, Inc.: *See*—
Krubsack, Ronald H.; Caruso, Jerome C.; and Krubsack, Larry J., 4,424,555, Cl. 362-419.000.
Hartman, Adrian R.: *See*—
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Hartmann, Heinrich: *See*—
Barzynski, Helmut; Hartmann, Heinrich; Lautenbach, Dieter; Osterloh, Rolf; Goethlich, Lutz; and Heil, Guenter, 4,424,314, Cl. 525-454.000.
Hartshorn, Lawrence L. Fire alarm system. 4,424,510, Cl. 340-304.000.
Hasegawa, Michio: *See*—
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Hasenberg, Larry E.: *See*—
Camey, William R.; and Hasenberg, Larry E., 4,423,885, Cl. 280-423.00B.
Hashimoto, Naoto; and Shimadzu, Hiroshi, to Takeda Chemical Industries, Ltd. 9-Thiomaytansinoids and their pharmaceutical compositions and use. 4,424,219, Cl. 424-248.540.
Hashimoto, Yasuich; and Oda, Yasuyuki, to Tokyo Shibaura Denki Kabushiki Kaisha. Data exchange circuit for a magnetic memory apparatus. 4,424,536, Cl. 360-51.000.
Haskins, Steve W., to International Telephone and Telegraph Corporation. Pivotal switch operating mechanism. 4,424,420, Cl. 179-164.000.
Haslanger, Martin F.: *See*—
Moniot, Jerome L.; Fox, Rita T.; Sprague, Peter W.; and Haslanger, Martin F., 4,424,376, Cl. 560-120.000.
Hatao, Itsuro; and Kobayashi, Susumu, to Victor Company of Japan, Limited. Method and apparatus for controlling a dynamic or static type digital display device. 4,424,513, Cl. 340-805.000.
Hattori, Takahisa: *See*—
Tanaka, Nobuyasu; Tominaga, Hiroshi; Fujita, Minoru; Tanaka, Hajime; Hattori, Takahisa; Yasuda, Akira; and Kato, Shigeya, 4,423,828, Cl. 221-129.000.
Hattori, Yasuo; Ikematu, Takeshi; Ibaragi, Toshio; and Honda, Makoto, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for producing polymers or copolymers of conjugated dienes. 4,424,322, Cl. 526-175.000.
Haug, Theobald, to Ciba-Geigy Corporation. Meat-curable mixture, which are stable on storage, of epoxide resin, 3-aminocrotonic acid derivatives and maleimide compound. 4,424,336, Cl. 528-117.000.
Hauni-Werke Korber & Co. KG: *See*—
Reuland, Joachim, 4,423,742, Cl. 131-84.00C.
Reuland, Joachim, 4,424,443, Cl. 250-252.100.
Hay, Robert A., II; and Crugher, Charles C., III, to Dow Chemical Company, The. Flat plate heat exchange apparatus. 4,423,767, Cl. 165-81.000.
Hayakawa, Yoshihiro: *See*—
Yano, Tsutomu; Hayakawa, Yoshihiro; Tachita, Ryobun; Irioka, Kazuyoshi; Fukukita, Hiroshi; and Fukumoto, Akira, 4,423,737, Cl. 128-661.000.
Hayama, Nobuhiro: *See*—
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Okigami, Noboru; Sekiguchi, Yoshitoshi; Hayasaka, Hiroshi; Koyama, Toshitsugu; Fujioka, Takeo; and Yoshimitsu, Takeshi, 4,424,017, Cl. 431-3.000.
Hayashi, Yoshimasa, to Nissan Motor Co., Ltd. Bearing. 4,423,667, Cl. 92-261.000.
Hayashi, Yoshimasa, to Nissan Motor Company Limited. Internal combustion engine. 4,423,714, Cl. 123-407.000.
Hayles, David C. Lens attachment and method for multiple imaging. 4,423,939, Cl. 354-122.000.
Hazeltine Corporation: *See*—
Burnham, William W., 4,423,953, Cl. 355-70.000.
Heath Company: *See*—
Krenz, Horst M., 4,423,975, Cl. 400-616.000.
Heckmann, Walter: *See*—
Hambrecht, Juergen; Brandstetter, Franz; Echte, Adolf; Gerberding, Karl; and Heckmann, Walter, 4,424,304, Cl. 525-68.000.

Hederich, Volker; and Gehrke, Gunter, to Bayer Aktiengesellschaft. Process for the preparation of 1-hydroxy-4-amino-5(8)-nitroanthraquinone. 4,424,160, Cl. 260-380.000.

Hedrick, Ross M.; Woodbrey, James C.; Gabbert, James D.; and Erickson, Floyd B., to Monsanto Company. Metal-thermoplastic-metal laminates. 4,424,254, Cl. 428-215.000.

Hefner, Robert E., Jr.; and McConchie, Garnet E., to Dow Chemical Company, The. Poly(allyl)poly(alkenylphenols). 4,424,310, Cl. 526-277.000.

Heider, Lothar: *See*—
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Elter, Claus; Handel, Hubert; Heiland, Hans-Juergen; Schmitt, Hermann; and Schoening, Josef, 4,424,531, Cl. 358-100.000.

Heinrich Baumgarten KG Eisen-und Blechwarenfabrik: *See*—
Baugarten, Gerd D., 4,423,825, Cl. 220-316.000.

Heiser, Joachim; and Leutner, Volkmar, to Robert Bosch GmbH. Pressure regulating valve. 4,423,747, Cl. 137-85.000.

Heitmann, Svend A. Rubber cloth for copying machines. 4,423,851, Cl. 248-362.000.

Hellman, Martin E.; and Pohlig, Stephen C., to Leland Stanford Junior University, Board of Trustees of the. Exponentiation cryptographic apparatus and method. 4,424,414, Cl. 178-22.110.

Helm, Emanuel: *See*—
Rivinius, Theodore; and Helm, Emanuel, 4,423,560, Cl. 37-116.000.

Henes Products Corp.: *See*—
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Henkel Kommanditgesellschaft auf Aktien: *See*—
Gruber, Werner, 4,424,331, Cl. 526-301.000.
Rahse, Wilfried; Kuhne, Norbert; and Wust, Willi, 4,424,347, Cl. 536-91.000.

Hentschel, Karl-Heinz; and Dhein, Rolf, to Bayer Aktiengesellschaft. Oligoisobutylcyclohexane, a process for its preparation and its use. 4,424,400, Cl. 585-20.000.

Herman, Wesley K. Irrigation and aspiration syringe. 4,424,055, Cl. 604-36.000.

Hermann Associates, Inc.: *See*—
Serra, Henry, 4,423,687, Cl. 109-50.000.

Hermann Berstorff Maschinenbau GmbH: *See*—
Anders, Dietmar, 4,423,960, Cl. 366-75.000.

Hermle, Eduard. Switching mechanism. 4,424,423, Cl. 200-31.00R.

Herrold, Lear C., to Westinghouse Electric Corp. Method of using ceramic greenware support. 4,424,022, Cl. 432-5.000.

Herschede, Dean. Method of determining wind direction for hunters. 4,423,626, Cl. 73-188.000.

Hess, Dieter: *See*—
Daubenbuchel, Werner; Hess, Dieter; and Kiefer, Erich, 4,424,178, Cl. 264-40.100.

Hess, Hans-Peter; and Muhling, Gunter, to Metallwerk Max Brose GmbH & Co. Drive arrangement for a window lifting mechanism. 4,423,566, Cl. 49-352.000.

Hettinger, William P., Jr., to Ashland Oil, Inc. Converting and stripping heavy hydrocarbons in two stages of riser conversion with regenerated catalyst. 4,424,116, Cl. 208-120.000.

Hewitt, Jennings P. Arm wrestling device. 4,423,862, Cl. 272-67.000.

Hewlett-Packard Company: *See*—
Luo, Zong S.; and Chan, Chor S., 4,423,675, Cl. 101-93.040.
Lynch, Todd R., 4,424,563, Cl. 364-200.000.
Potter, Ronald W., 4,424,492, Cl. 328-155.000.

Hick & Co. GmbH: *See*—
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Hick, Werner, to Hick & Co. GmbH. Process for sterilizing tub-shaped containers. 4,424,189, Cl. 422-27.000.

Higashiyama, Katsuhiko: *See*—
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Hildebrand, Paul N., to Orange Energy Systems, Inc. Apparatus for reducing heater and air conditioning energy consumption. 4,423,765, Cl. 165-12.000.

Hillis, Frank M., to Bendix Corporation, The. Electrical connector. 4,423,919, Cl. 339-143.00R.

Hinai, Mamoru, to Hitachi, Ltd. Data processing system providing dual storage of reference bits. 4,424,564, Cl. 364-200.000.

Hira, Yutaka; and Nakamura, Shinya, to Tokyo Electric Co., Ltd. Printer with a document guide device. 4,423,971, Cl. 400-144.200.

Hiraki, Hideaki: *See*—
Harata, Mituo; Katsura, Masaki; Uno, Shigeki; Hiraki, Hideaki; and Shiratori, Masayuki, 4,424,508, Cl. 338-35.000.

Hirao, Yutaka: *See*—
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Hirata, Akira; and Shichinohe, Takashi, to Laurel Bank Machine Company. Note supply container with reject receiver for bank note dispenser. 4,423,826, Cl. 221-100.000.

Hisajima, Masahiko: *See*—
Kimura, Hiroshi; Hisajima, Masahiko; Shigemura, Yutaka; Yada, Isao; Irie, Yoichiro; and Morimoto, Kiyoshi, 4,423,948, Cl. 355-14.00D.

Hishida, Tadashi. Method of manufacturing a bearing housing. 4,423,540, Cl. 29-460.000.

Hiskes, David J., to United Technologies Corporation. End cap for a rotor shaft of a rotary machine. 4,424,004, Cl. 416-244.00A.

Hitachi Koki Co., Ltd.: *See*—
Matsuda, Yasumasa; Sagae, Syoji; and Kasahara, Masatoshi, 4,424,520, Cl. 346-140.00R.

Hitachi, Ltd.: *See*—
Enoki, Takashi; Nakamura, Hiroaki; and Nakashima, Fujio, 4,424,574, Cl. 364-900.000.
Genma, Kazutoshi; and Sasaki, Akio, 4,424,562, Cl. 364-200.000.
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Nishimura, Yutake; Oyama, Yoshishige; Kuroiwa, Hiroshi; and Osuga, Minoru, 4,424,568, Cl. 364-431.070.
Oguni, Kensaku; Yasuda, Hiromu; and Kuroda, Sigeaki, 4,423,603, Cl. 62-324.100.
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Hitachi Shipbuilding & Engineering Co., Ltd.: *See*—
Kamino, Yasumi; Onitsuka, Shigenori; Watanabe, Takanobu; and Yano, Katsuyuki, 4,424,062, Cl. 44-1.0SR.
Okigami, Noboru; Sekiguchi, Yoshitoshi; Hayasaka, Hiroshi; Koyama, Toshitsugu; Fujioka, Takeo; and Yoshimitsu, Takeshi, 4,424,017, Cl. 431-3.000.

Ho, Andrew W.: *See*—
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Ho, William W.; Harker, Alan B.; Goldberg, Ira B.; and Chung, Kwang E., to Rockwell International Corporation. Microwave meter for fluid mixtures. 4,423,623, Cl. 73-61.00R.

Hoarau, Roland J.: *See*—
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Hobby, William M., III: *See*—
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Hochtemperatur-Reaktorbau GmbH.: *See*—
Elter, Claus; Handel, Hubert; Heiland, Hans-Juergen; Schmitt, Hermann; and Schoening, Josef, 4,424,531, Cl. 358-100.000.

Hoechst Aktiengesellschaft: *See*—
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Klippert, Heinz; Tzachoppe, Eberhard; Paschalis, Stratos; Weinlich, Jurgen; and Engelmann, Manfred, 4,424,301, Cl. 525-53.000.

Hoechst-Roussel Pharmaceuticals, Inc.: *See*—
Klooze, Solomon S.; and Ehrgott, Frederick J., 4,424,357, Cl. 546-207.000.

Hoene, David J.; and Riggs, John L., to Du Pont de Nemours, E. I., and Company. Formaldehyde process. 4,424,397, Cl. 568-473.000.

Hoffmann-La Roche Inc.: *See*—
Sheth, Prabhakar R.; and Tossounian, Jacques L., 4,424,235, Cl. 424-319.000.

Hofmann, Ulrich. Method for mechanical stitch formation as well as knitting machine for carrying out the method. 4,423,606, Cl. 66-13.000.

Hogenhout, Franciscus; McDermott, Arthur W.; and Rumney, Joseph L., to Boeing Company, The. Cable for electrical power transmission. 4,423,620, Cl. 72-430.000.

Hohl, Frank: *See*—
Lee, Ja H.; Hohl, Frank; and Weaver, Willard R., 4,424,592, Cl. 372-79.000.

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Parsons, Robert L.; Valdespino, Joseph M.; Varraux, Alan R.; Holcomb, Allen K.; and Hobby, William M., III, 4,424,058, Cl. 604-118.000.

Holick, Michael F., to Massachusetts General Hospital. [1β^3H] 1α,25 Dihydroxyvitamin D_3 and method for its preparation. 4,424,161, Cl. 260-397.200.

Hollenbeck, Leroy F., Jr., to Perko, Inc. Boat battery selector switch combined with lock. 4,424,424, Cl. 200-44.000.

Holm, Boris, to Aktiebolaget Bofors. Method for desensitizing particle formed solid explosive substances. 4,424,087, Cl. 149-21.000.

Holmes, Horace D. Self-sealing tapered thread form. 4,423,893, Cl. 285-334.000.

Honda, Makoto: *See*—
Hattori, Yasuo; Ikematu, Takeshi; Ibaragi, Toshio; and Honda, Makoto, 4,424,322, Cl. 526-175.000.

Honeywell Inc.: *See*—
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Honeywell Information Systems Inc.: *See*—
Lange, Ronald E.; and Koegel, Robert J., 4,424,576, Cl. 364-900.000.
Stanley, Philip E.; Brown, Richard P.; and Peters, Arthur, 4,424,561, Cl. 364-200.000.

Hopkins, William J.; Sweeney, Paula C.; and Bailey, David C., to United States of America, Agriculture. Process and compositions for preserving fresh hides and skins. 4,424,059, Cl. 8-94.180.
Hori, Hidetaka: *See*—
Ito, Tadao; and Hori, Hidetaka, 4,424,198, Cl. 423-342.000.
Horimoto, Koji: *See*—
Nakamura, Motofumi; Horimoto, Koji; and Yusawa, Motoyasu, 4,424,255, Cl. 428-283.000.
Horstman Gear Group Ltd.: *See*—
Palmer, Malcolm W. T.; and Pickford, Grahame A., 4,424,454, Cl. 307-140.000.
Hoshina, Katsumi: *See*—
Koyama, Masao; Matuo, Syuitu; Nakayama, Chiaki; and Hoshina, Katsumi, 4,424,193, Cl. 422-248.000.
Hounsfield, Godfrey N., to Picker International Limited. Nuclear magnetic resonance apparatus. 4,424,488, Cl. 324-309.000.
House, Hugh A. Wet-dry syringe. 4,424,057, Cl. 604-88.000.
Howard, L. Brewster, to American Saw & Mfg. Company. Band saw blade construction. 4,423,653, Cl. 83-820.000.
Howarth, Louis E., to Bell Telephone Laboratories, Incorporated. Fabrication of optical connectors. 4,424,174, Cl. 264-1.500.
Howe, Raymond P., to Growth and Development Research, Inc. Orthodontic appliance. 4,424,032, Cl. 433-19.000.
Howell, Gregory L.; Smith, Oscar H.; and Townsend, Don G., to General Motors Corporation. Intercell flame arrestor for a battery venting and filling manifold. 4,424,263, Cl. 429-88.000.
Howlett, James J.: *See*—
Zagranski, Raymond D.; and Howlett, James J., 4,423,593, Cl. 60-39.161.
Howmedica, Inc.: *See*—
Castle, G. S. Peter; and Rorabeck, Cecil H., 4,423,740, Cl. 128-748.000.
Howse, Philip E.: *See*—
Davies, Alan R.; MacAuley, Ewen D. M.; Harris, George; Baker, Raymond; Howse, Philip E.; and Evans, David A., 4,423,564, Cl. 43-121.000.
Hsu, Chao-Yang, to Sun Tech, Inc. Hydroformylation catalyst and process of using it. 4,424,380, Cl. 568-454.000.
Hsu, Ying-Yen, to Timex Corporation. 3-Chloro-4-cyanophenyl 4'-substituted benzoates. 4,424,371, Cl. 549-373.000.
Hsu, Ying-Yen, to Timex Corporation. 4-Substituted phenyl 4'-(5-N-alkyl-1,3-dioxan-2-yl) thiobenzoates. 4,424,372, Cl. 549-374.000.
Hughes, Robert M. Process for extraction of metals from leachable ores and forming of building materials. 4,424,194, Cl. 423-1.000.
Huibers, Derk T. A.; and Kang, Chia-Chen C., to Hydrocarbon Research, Inc. Catalyst for coal liquefaction process. 4,424,109, Cl. 268-10.000.
Hulseweh, Terry S., to Motorola, Inc. Method for protecting a semiconductor device from radiation indirect failures. 4,423,548, Cl. 29-591.000.
Humberstone, Kenneth J., to American Tank & Fabricating Company. Method of forming crucibles for molten magnesium. 4,424,436, Cl. 219-137.00R.
Hutchison, Joseph A., to Solar Kinetics, Inc. Parabolic trough solar collector. 4,423,719, Cl. 126-438.000.
Huyck Corporation: *See*—
Thompson, Charles E., 4,423,755, Cl. 139-383.00A.
Huzita, Riuzo: *See*—
Nakamura, Shinichi; Huzita, Riuzo; Kamitani, Iwao; and Maeda, Tetsuma, 4,424,060, Cl. 8-115.500.
Hyatt, Charles J.; and Oravitz, James L., Jr., to PPG Industries, Inc. Method of imposing a damage free score in a refractory piece. 4,423,835, Cl. 225-2.000.
Hyatt, Charles J., to PPG Industries, Inc. Apparatus for imposing a damage free score in a refractory piece. 4,423,836, Cl. 225-96.000.
Hydrocarbon Research, Inc.: *See*—
Huibers, Derk T. A.; and Kang, Chia-Chen C., 4,424,109, Cl. 268-10.000.
Hyster Company: *See*—
Camey, William R.; and Hasenberg, Larry E., 4,423,885, Cl. 280-423.00B.
Iannicelli, Joseph, to J. M. Huber Corporation. Method and magnetic separator for removing weakly magnetic particles from slurries of minute mineral particles. 4,424,124, Cl. 209-214.000.
Ibaragi, Toshio: *See*—
Hattori, Yasuo; Ikematu, Takeshi; Ibaragi, Toshio; and Honda, Makoto, 4,424,322, Cl. 526-175.000.
Ichida, Yutaka: *See*—
Takahashi, Eiji; Shimazu, Shinichi; Wada, Yukio; Iwami, Ichiro; Nishiwaki, Takashi; Nishiyama, Toshikazu; and Ichida, Yutaka, 4,423,856, Cl. 266-106.000.
Ichikawa, Yoshiyuki: *See*—
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Ichimura, Takeo: *See*—
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Ichino, Nobuyuki: *See*—
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Ideal Toy Corporation: *See*—
Mucaro, Salvatore A., 4,423,871, Cl. 273-86.00R.
Idel, Karsten; Ostlinning, Edgar; Freitag, Dieter; and Bottenbruch, Ludwig, to Bayer Aktiengesellschaft. Process for the preparation of polyarylene sulphides. 4,424,339, Cl. 528-388.000.
Ideta, Yasufumi, to Nissan Motor Company Limited. Working fluid supply system for a hydraulic power booster and a power steering system. 4,423,598, Cl. 60-547.300.
Ikari, Kunihiro: *See*—
Koike, Norio; and Ikari, Kunihiro, 4,424,265, Cl. 430-28.000.
Ikegami, Akira: *See*—
Sugishita, Nobuyuki; and Ikegami, Akira, 4,424,251, Cl. 428-209.000.
Ikegami, Takashi, to Mitsubishi Denki Kabushiki Kaisha. Combination DC/AC generator for automotive vehicles. 4,424,464, Cl. 310-68.00D.
Ikematu, Takeshi: *See*—
Hattori, Yasuo; Ikematu, Takeshi; Ibaragi, Toshio; and Honda, Makoto, 4,424,322, Cl. 526-175.000.
Imagawa, Kyoshiro; and Sakuragi, Shiro, to Agency of Industrial Science & Technology. Safety device for laser ray guide. 4,423,726, Cl. 128-303.100.
Imaizumi, Hiraku: *See*—
Mitsui, Tadashi; and Imaizumi, Hiraku, 4,424,504, Cl. 336-83.000.
Imazeki, Ryoji; Fukuyama, Hiroomi; and Kagawa, Yoshimasa, to Fujitsu Fanuc Ltd. Method and apparatus for a numerical control device for controlling a machining device having a plurality of tools. 4,424,569, Cl. 364-474.000.
Imazeki, Ryoji; and Yamazaki, Etsuo, to Fujitsu Fanuc Limited. Tracer control system. 4,424,570, Cl. 364-520.000.
Imbert, Thierry F.: *See*—
Dostert, Philippe L.; Imbert, Thierry F.; and Bucher, Bernard P., 4,424,358, Cl. 546-124.000.
Immel, Richard H., to Atlantic Richfield Company. Molding prepuffed polystyrene for higher density skin. 4,424,177, Cl. 264-24.000.
Imperial Chemical Industries PLC: *See*—
Candlin, John P.; Caunt, Anthony D.; and Law, Peter L., 4,424,138, Cl. 502-162.000.
Improtec: *See*—
Braithwaite, David G., deceased; and Pickle, Joe D., 4,424,388, Cl. 568-899.000.
Inaba, Hajimu; and Sakakibara, Shinsuke, to Fujitsu Fanuc Ltd. Gripping device. 4,423,998, Cl. 414-730.000.
Inagaki, Kouichi: *See*—
Yamanaka, Takashi; Inagaki, Kouichi; Naya, Eizo; Demizu, Michinosuke; and Okumura, Mitsuhiro, 4,424,429, Cl. 200-264.000.
Inbar, Dan; Gafni, Giora; Grimberg, Ernest; and Koren, Jacob, to Elscint, Ltd. Gamma camera correction system and method for using the same. 4,424,446, Cl. 250-363.00S.
Inder, Robert W.: *See*—
Clarke, Samuel L. H.; and Inder, Robert W., 4,424,575, Cl. 364-900.000.
Industrial Research Organisation: *See*—
White, Noam; Kagi, Douglas A.; Creer, Jack G.; and Tsai, Peter, 4,424,401, Cl. 585-416.000.
Industrie Zanussi S.p.A.: *See*—
Munini, Dino, 4,423,607, Cl. 68-23.200.
Ingebrigtsen, Janis: *See*—
Seeney, Charles E.; Kraemer, John F.; and Ingebrigtsen, Janis, 4,423,764, Cl. 164-528.000.
Inomata, Koichiro; Hasegawa, Michio; and Onodera, Toshihiro, to Tokyo Shibaura Denki Kabushiki Kaisha. High frequency switching circuit. 4,424,459, Cl. 307-415.000.
Inotek-Westmoreland Venture: *See*—
Westmoreland, Julius C., 4,424,012, Cl. 417-507.000.
Inoue, Akiyoshi: *See*—
Ujihara, Takashi; Inoue, Akiyoshi; Yamada, Youzou; Yasuda, Shinji; Takeda, Shuji; and Ioroi, Takao, 4,424,542, Cl. 360-121.000.
Inoue, Ikutaro; and Yansta, Kousaki, to Alps Electric Co., Ltd. Serial printer. 4,423,972, Cl. 400-155.000.
Inoue-Japax Research Incorporated: *See*—
Inoue, Kiyoshi, 4,424,433, Cl. 219-69.00W.
Kaneko, Hideo; and Onoue, Makoto, 4,424,432, Cl. 219-69.00E.
Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. Method and apparatus for electrically machining a conductive workpiece with isotropic ultrasonic-waves radiation. 4,424,433, Cl. 219-69.00W.
Inoue, Yoshihisa, to Murata Kikai Kabushiki Kaisha. Double twisting frame for flange bobbin. 4,423,587, Cl. 57-58.860.
Institut Elektrosvarki Imeni E.O. Patona: *See*—
Rossokhinsky, Alexei A.; Balakin, Valentin I.; Babak, Alexandr K.; Lebedev, Vladimir K.; Mironov, Lev G.; Chelnokov, Gennady I.; and Vinogradov, Gennady V., 4,424,106, Cl. 204-256.000.
Institut Francais du Petrole: *See*—
Chauvin, Yves; Commereuc, Dominique; Sugier, Andre; and Le Page, Jean-Francois, 4,424,282, Cl. 518-700.000.
Ecomard, Andre; Briand, Louis; and Pinchon, Philippe, 4,423,715, Cl. 123-501.000.
Instytut Chemii Przemystowej: *See*—
Penczek, Piotr A.; Klosowska-Wolkowicz, Zofia; Kicko-Walczak, Ewa J.; and Kopec, Andrzej, 4,424,299, Cl. 525-31.000.
Interface, Inc.: *See*—
Caris, Richard F., 4,423,793, Cl. 177-211.000.
Intermountain Health Care: *See*—
Clark, Justin S.; and Yen, Ming-Cheng, 4,424,276, Cl. 436-50.000.
International Barrier Corporation: *See*—
Cobb, Lincoln C.; and Wardell, Raymond A., 4,423,854, Cl. 256-13.100.
International Business Machines Corporation: *See*—
Brandeis, Christine; Kempf, Jurgen; Kraus, Georg; and Kunzel, Ulrich, 4,424,102, Cl. 204-192.00E.

Dennard, Robert H.; and Wordeman, Matthew R., 4,424,526, Cl. 357-29.000.
Farrar, Paul A.; Geffken, Robert M.; and Kroll, Charles T., 4,423,547, Cl. 29-571.000.
Harper, James M. E.; and Kleinsasser, Alan W., 4,424,104, Cl. 204-192.00N.
Keidl, Steven D.; and Shidler, Karl A., 4,424,539, Cl. 360-69.000.
International Flavors & Fragrances Inc.: *See*—
Mookherjee, Braja D.; Trenkle, Robert W.; Wolff, Robin K.; Boden, Richard M.; and Yoshida, Takao, 4,424,378, Cl. 568-374.000.
Sprecker, Mark A.; Klemarczyk, Philip T.; and Belko, Robert P., 4,424,379, Cl. 568-446.000.
International Harvester Co.: *See*—
Robinson, Edward L., Jr.; and Westerfield, Lawerence D., 4,423,788, Cl. 172-427.000.
International Minerals & Chemical Corp.: *See*—
Seeney, Charles E.; Kraemer, John F.; and Ingebrigtsen, Janis, 4,423,764, Cl. 164-528.000.
International Paper Company: *See*—
DiGeronimo, Michael J., 4,424,188, Cl. 422-20.000.
International Standard Electric Corporation: *See*—
Murray, James A.; and Nyman, David, 4,424,498, Cl. 333-18.000.
International Telephone and Telegraph Corporation: *See*—
Haskins, Steve W., 4,424,420, Cl. 179-164.000.
Kruger, Bradford E.; and Parr, John C., 4,424,516, Cl. 343-763.000.
International Tool & Supply Co., Inc.: *See*—
Toelke, Lester W., 4,423,647, Cl. 81-57.340.
Toelke, Lester W., 4,423,648, Cl. 81-57.340.
Ioroi, Takao: *See*—
Ujihara, Takashi; Inoue, Akiyoshi; Yamada, Youzou; Yasuda, Shinji; Takeda, Shuji; and Ioroi, Takao, 4,424,542, Cl. 360-121.000.
Iquad Company Incorporated: *See*—
Potter, John T., 4,423,970, Cl. 400-141.100.
Irie, Yoichiro: *See*—
Kimura, Hiroshi; Hisajima, Masahiko; Shigemura, Yutaka; Yada, Isao; Irie, Yoichiro; and Morimoto, Kiyoshi, 4,423,948, Cl. 355-14.00D.
Iriguchi, Norio, to Asahi Kasei Kogyo Kabushiki Kaisha. Apparatus and method for separating blood components. 4,424,132, Cl. 210-800.000.
Irioka, Kazuyoshi: *See*—
Yano, Tsutomu; Hayakawa, Yoshihiro; Tachita, Ryobun; Irioka, Kazuyoshi; Fukukita, Hiroshi; and Fukumoto, Akira, 4,423,737, Cl. 128-661.000.
Irwin, C. Clark: *See*—
Winchell, Frank J.; Williams, Jerry K.; and Irwin, C. Clark, 4,423,795, Cl. 180-215.000.
Ishibe, Nobuyuki, to Dow Chemical Company, The. Methylchloroform stabilizer compositions employing thiazolidine. 4,424,386, Cl. 570-109.000.
Ishii, Shiro, to M-S Corporation. Battery powered drawer opening device. 4,424,426, Cl. 200-61.610.
Ishikawa, Tadashi: *See*—
Ogihara, Masuo; Shinozaki, Nobuo; Ishikawa, Tadashi; and Seki, Yoichi, 4,423,966, Cl. 368-263.000.
Ishikura, Tomoyuki: *See*—
Oki, Toshikazu; Yoshimoto, Akihiro; Matsuzawa, Yasue; Ishikura, Tomoyuki; Umezawa, Hamao; and Takeuchi, Tomio, 4,424,342, Cl. 536-6.400.
Iso, Tadashi; and Yamauchi, Hideyasu, to Santen Pharmaceutical Co., Ltd. Antihypertensive agent comprising a thiazolidine carboxylic acid and probenecid. 4,424,228, Cl. 424-270.000.
Itek Corporation: *See*—
Barnes, William P., Jr., 4,424,435, Cl. 219-121.0LD.
Ito, Osamu: *See*—
Sami, Hiroshi; Ueda, Tatehito; Ito, Osamu; Hobo, Nobuhito; Naitou, Takashi; Nakamura, Tetsuya; Kawai, Shizuo; and Miyata, Yukinori, 4,423,713, Cl. 123-357.000.
Ito, Tadao; and Hori, Hidetaka, to Nippon Aerosil Co., Ltd. Process for preparing trichlorosilane and silicon tetrachloride from silicon and hydrogen chloride. 4,424,198, Cl. 423-342.000.
Itoh, Takeji, to Osaka Bobbin Kabushiki Kaisha. Single-operation type of fastening device for bobbin spacer. 4,423,609, Cl. 68-212.000.
ITT Industries, Inc.: *See*—
Haar, Lucas H., 4,423,665, Cl. 91-369.00B.
Ivanhoe, Jeffrey, to Greenberg, Edward I. Plastic laces for running shoes. 4,423,539, Cl. 24-143.00A.
Iwami, Ichiro: *See*—
Takahashi, Eiji; Shimazu, Shinichi; Wada, Yukio; Iwami, Ichiro; Nishiwaki, Takashi; Nishiyama, Toshikazu; and Ichida, Yutaka, 4,423,856, Cl. 266-106.000.
Iwata, Hiroshi; and Yoshino, Tsunemi, to West Electric Co., Ltd. Device for shifting lens group. 4,423,941, Cl. 354-195.000.
Iwata, Hiroshi: *See*—
Kashihara, Toshitsugu; Iwata, Hiroshi; Yoshino, Tsunemi; and Morioka, Akitoshi, 4,423,940, Cl. 354-149.000.
IWE Ingenieurgellschaft fuer wirtschaftliche Energienutzung mit beschraenkter Haftung, Firma: *See*—
Durr, Walter; Weisse, Dietrich; Simon, Ulrich; and von Neufville-Schoepflin, Friedwalt, 4,424,474, Cl. 318-798.000.
Iya, Sridhar K., to Union Carbide Corporation. Fluid jet seed particle generator for silane pyrolysis reactor. 4,424,199, Cl. 423-349.000.
Izzi, Lewis B., Sr., to Plastic Oddities, Inc. Resilient gasket between toilet bowl and drainpipe. 4,423,526, Cl. 4-252.00R.
J. M. Huber Corporation: *See*—
Iannicelli, Joseph, 4,424,124, Cl. 209-214.000.
J-M Manufacturing Company, Inc.: *See*—
Nguyen, Minh D.; and Lostak, Charles, 4,423,700, Cl. 118-404.000.
J. P. Industries, Inc.: *See*—
Psarouthakis, John, 4,423,752, Cl. 137-625.410.
J. R. Simplot Company: *See*—
Winslow, Elden D., 4,423,652, Cl. 83-24.000.
Jacobs Mfg. Company, The: *See*—
Mayne, Harry H.; and Quenneville, Raymond N., 4,423,712, Cl. 123-321.000.
Jacobsen, Steven: *See*—
Tarjan, Peter P.; Susman, Marvin L.; and Jacobsen, Steven, 4,423,732, Cl. 128-419.00P.
Jacot-Descombes, Jacques; and Monnier, Jean-Luc, to Microbo, S.A. Programmable robot. 4,424,472, Cl. 318-568.000.
Jachnig, Leo J.: *See*—
Braunlin, Walter A.; Gorski, Alan; Jachnig, Leo J.; Moskal, Clifford J.; Naylor, Joseph D.; Parimi, Krishnia; and Ward, John V., 4,424,108, Cl. 208-8.0LE.
Jakubowicz, Raymond F., to Eastman Kodak Company. Analyzer featuring loading and unloading means for a storage chamber, and common drive means. 4,424,191, Cl. 422-65.000.
Janome Sewing Machine Co. Ltd.: *See*—
Hanyu, Susumu; Koike, Mikio; and Hara, Kazumasa, 4,423,693, Cl. 112-324.000.
Japan Atomic Energy Research Institute: *See*—
Ara, Katsuyuki; Wakayama, Naoaki; Kobayashi, Kazuo; and Ogasawara, Toshihiko, 4,423,629, Cl. 73-295.000.
Jehle, Fritz: *See*—
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Jelinek, Nikolaus; Ketterer, Hans; and Schausberger, Helmut, to Agfa-Gevaert Aktiengesellschaft. Rack for transporting photosensitive material through a bath. 4,423,947, Cl. 354-320.000.
Jet Research Center, Inc.: *See*—
Christopher, Glenn B., 4,424,086, Cl. 149-19.300.
Jetter, Hans, to Bizerba-Werke, Wilhelm Kraut GmbH & Co. KG. Electromechanical bending force receiver, in particular for weighing cells. 4,423,640, Cl. 73-862.650.
Joffe, Boris B.; Tiebor, John E.; Spongr, Jerry J.; and Sawyer, Byron E., to Twin City International, Inc. Portable coating thickness measuring device. 4,424,445, Cl. 250-308.000.
Johansson, Leif S. Frame construction for string instruments. 4,423,656, Cl. 84-188.000.
Johnson, Bruce K., to Polaroid Corporation. Photographic exposure control system and method. 4,423,936, Cl. 354-403.000.
Johnson, D. Emil; Krutchen, Charles M.; and Sharps, G. Vincent, Jr., to Mobil Oil Corporation. Polymer foam process. 4,424,287, Cl. 521-74.000.
Johnson, Gordon C.: *See*—
Weinberg, Kurt; and Johnson, Gordon C., 4,424,140, Cl. 502-155.000.
Johnson, Milo R.: *See*—
Frazier, Gary A.; and Johnson, Milo R., 4,423,923, Cl. 350-96.150.
Johnson, Roy A.; Lincoln, Frank H.; and Pike, John E., to Upjohn Company, The. 2-Decarboxy-2-tetrazolyl-PGI$_2$ compounds. 4,424,350, Cl. 542-426.000.
Johnson, William C.: *See*—
Lee, Richard H.; Cullen, Steven R.; Bailen, Eddie H.; Rasmussen, David H.; and Johnson, William C., 4,424,051, Cl. 493-37.000.
Johnston, Christian W.: *See*—
Gould, Francis E.; and Johnston, Christian W., 4,424,305, Cl. 525-127.000.
Joly, Gabriel: *See*—
Lalloz, Guy; and Joly, Gabriel, 4,424,180, Cl. 264-51.000.
Jones, Albert S.; Walker, Richard T.; de Clercq, Erik D. A.; and Barr, Philip J., to Rega Instituut VZW; and University of Birmingham. 2'Deoxy-5-(2-halogenovinyl)-uridines, pharmaceutical compositions and method of use. 4,424,211, Cl. 424-180.000.
Jones, Cecil M., to Norton Company. Refractory cement. 4,424,281, Cl. 501-89.000.
Jones, David M.: *See*—
Szelke, Michael; Jones, David M.; and Hallett, Allan, 4,424,207, Cl. 424-177.000.
Jones, Donald R. Gas forge. 4,424,025, Cl. 432-120.000.
Jones, John A. Lift-pad assembly for vehicle lift. 4,423,798, Cl. 187-8.750.
Jordan, Peter J., to Kramer, Henry M. Self-supporting structure. 4,423,849, Cl. 248-165.000.
Jorgensen, Dan; and Dyrsting, Hjarne, to A/S Dumex (Dumex Ltd.). Fluorine containing 2,4,5-triphenylimidazoles. 4,424,229, Cl. 424-273.00R.
Jouffroy, Guy: *See*—
Durand, Pierre; and Jouffroy, Guy, 4,424,319, Cl. 526-88.000.
Junker, Werner: *See*—
Behr, Karl-Gunther; and Junker, Werner, 4,423,933, Cl. 353-27.00R.
Junkers, John K.; and Krautter, Wilhelm, to Unex Corporation. Ratchet drive with an equal load double pawl arrangement. 4,423,649, Cl. 81-57.390.
Kabushiki Kaisha Kobe Seiko Sho: *See*—
Takahashi, Eiji; Shimazu, Shinichi; Wada, Yukio; Iwami, Ichiro; Nishiwaki, Takashi; Nishiyama, Toshikazu; and Ichida, Yutaka, 4,423,856, Cl. 266-106.000.
Kabushiki Kaisha Komatsu Seisakusho: *See*—
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Kurihara, Keishiro; Nakayama, Tetsuya; and Moritoki, Masakazu, 4,423,785, Cl. 172-3.000.
Kabushiki Kaisha Suwa Seikosha: *See*—
Gomi, Tsuguo, 4,423,929, Cl. 350-335.000.
Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: *See*—
Tsukamoto, Kunio; and Shibano, Michio, 4,423,590, Cl. 57-354.000.
Kabushiki Kaisha Universal: *See*—
Okada, Kazuo, 4,423,872, Cl. 273-121.00A.
Kadnikova, Galina I.: *See*—
Pakhomov, Gennady N.; Luste, Anita Y.; Kolesnik, Anatoly G.; Demishev, Vasily N.; Pashinina, Eva L.; Mordvinova, Maria V.; Morozova, Lilia V.; Boginskaya, Lidia M.; Voskresenskaya, Irina B.; Osadchuk, Sara Z.; and Kadnikova, Galina I., 4,424,203, Cl. 424-52.000.
Kagawa, Yoshimasa: *See*—
Imazeki, Ryoji; Fukuyama, Hiroomi; and Kagawa, Yoshimasa, 4,424,569, Cl. 364-474.000.
Kagi, Douglas A.: *See*—
White, Noam; Kagi, Douglas A.; Creer, Jack G.; and Tsai, Peter, 4,424,401, Cl. 585-416.000.
Kahelin, Edward W. Variable double wheel ball propelling machine. 4,423,717, Cl. 124-78.000.
Kahn, Leonard R. Suppressed carrier communications system. 4,424,593, Cl. 455-47.000.
Kajimaki, Masao: *See*—
Yagi, Akira; Nishimura, Haruo; Bandai, Shinji; Kajimaki, Masao; Nakajima, Yoshihiro; and Matsumoto, Noriyuki, 4,423,532, Cl. 15-182.000.
Kalaus, Gyorgy: *See*—
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Gyulai, Zsuzsanna; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,224, Cl. 424-256.000.
Kallenbach, Rudolf. Thermochemical drilling and separating process for SiO_2 containing minerals and device for carrying out the process. 4,423,855, Cl. 266-74.000.
Kamezaki, Yasushi: *See*—
Sasaki, Hideyuki; Nakazawa, Toru; Kato, Yoshiaki; Fukuda, Hideo; Kamezaki, Yasushi; and Fushida, Akira, 4,424,269, Cl. 430-94.000.
Kamino, Yasumi; Onitsuka, Shigenori; Watanabe, Takanobu; and Yano, Katsuyuki, to Hitachi Shipbuilding & Engineering Co., Ltd. Process and apparatus for chemically removing ash from coal. 4,424,062, Cl. 44-1.05R.
Kamitani, Iwao: *See*—
Nakamura, Shinichi; Huzita, Riuzo; Kamitani, Iwao; and Maeda, Tetsuma, 4,424,060, Cl. 8-115.500.
Kan, Peter T.: *See*—
Patton, John T., Jr.; Kan, Peter T.; and Narayan, Thirumurti, 4,424,288, Cl. 521-99.000.
Kane, John J.: *See*—
Boyd, Hugh; and Kane, John J., 4,423,832, Cl. 222-203.000.
Kanebo Ltd.: *See*—
Minamino, Hiromi; Kondo, Mitsuo; Otani, Yasuhisa; Miyashita, Akira; Okada, Kenzo; and Kuramoto, Takashi, 4,424,204, Cl. 424-63.000.
Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: *See*—
Nakagawa, Masao; and Nishida, Tatehiko, 4,424,286, Cl. 521-58.000.
Shiozaki, Ken; and Ohnishi, Akira, 4,424,143, Cl. 502-225.000.
Kaneko, Hideo; and Onoue, Makoto, to Kaneko, Hideo; and Inoue-Japax Research Incorporated. Electrode material for travelling-wire type electrical discharge machining. 4,424,432, Cl. 219-69.00E.
Kang, Chia-Chen C.: *See*—
Huibers, Derk T. A.; and Kang, Chia-Chen C., 4,424,109, Cl. 268-10.000.
Karis, Arthur T., to Beloit Corporation. Arrangement for automatic changeover between ream and skid loading in a continuous sheeter. 4,423,995, Cl. 414-43.000.
Kariya, Michio: *See*—
Ogino, Makoto; Fujiu, Takamitsu; Futami, Toshihiko; Kariya, Michio; and Ichimura, Takeo, 4,424,037, Cl. 433-173.000.
Karl Thomae GmbH: *See*—
Engel, Wolfhard; Schmidt, Gunther; Trummlitz, Gunther; Eberlein, Wolfgang; Hammer, Rudolf; and Soldato, Piero D., 4,424,222, Cl. 424-250.000.
Karlock, James A.; and Marin, Roger A., to Vidicraft, Inc. Video circuit. 4,424,528, Cl. 358-39.000.
Karnes, Thomas E.; and Trupin, Robert J. Thermal engine. 4,423,596, Cl. 60-527.000.
Karpati, Egon: *See*—
Keve, Tibor; Zsadon, Bela; Fekete, Gyorgy; Lorincz, Csaba; Galambos, Janos; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,223, Cl. 424-256.000.
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Gyulai, Zsuzsanna; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,224, Cl. 424-256.000.
Kasahara, Masatoshi: *See*—
Matsuda, Yasumasa; Sagae, Syoji; and Kasahara, Masatoshi, 4,424,520, Cl. 346-140.00R.
Kaschig, Jurgen; and Lohmann, Dieter, to Ciba-Geigy Corporation. Vinyl-substituted 2,2'-bipyridine compounds. 4,424,359, Cl. 546-255.000.
Kashihara, Toshitsugu; Iwata, Hiroshi; Yoshino, Tsunemi; and Morioka, Akitoshi, to West Electric Co., Ltd. Photographic equipment. 4,423,940, Cl. 354-149.000.
Kashima, Yoshitake, to Hitachi, Ltd. Three-phase and three-leg core of core-type transformer. 4,424,503, Cl. 336-60.000.
Kashmerick, Gerald E.; and Rosenquist, Gerald A., to Felt Products Mfg. Co. Method of making composite gasket. 4,423,544, Cl. 29-527.200.
Kasperski, Jerzy R., to S.E.V. Alternateurs. Component of an electric or electronic circuit, in particular a diode as well as a bridge rectifier and alternator of motor vehicles comprising it. 4,424,560, Cl. 363-144.000.
Kato, Shigeya: *See*—
Tanaka, Nobuyasu; Tominaga, Hiroshi; Fujita, Minoru; Tanaka, Hajime; Hattori, Takahisa; Yasuda, Akira; and Kato, Shigeya, 4,423,828, Cl. 221-129.000.
Kato, Yoshiaki: *See*—
Sasaki, Hideyuki; Nakazawa, Toru; Kato, Yoshiaki; Fukuda, Hideo; Kamezaki, Yasushi; and Fushida, Akira, 4,424,269, Cl. 430-94.000.
Katsura, Masaki: *See*—
Harata, Mituo; Katsura, Masaki; Uno, Shigeki; Hiraki, Hideaki; and Shiratori, Masayuki, 4,424,508, Cl. 338-35.000.
Katz, Hyman, to Container Industries Inc. Apparatus for containing and dispensing fluids under pressure and method of manufacturing same. 4,423,829, Cl. 222-95.000.
Kaufmann, Gerda. Carpet-knotting instrument. 4,423,894, Cl. 289-17.000.
Kawabata, Yuichi: *See*—
Fukushima, Toshitaka; Koyama, Kazumi; Ueno, Kouji; Miyamura, Tamio; and Kawabata, Yuichi, 4,424,582, Cl. 365-189.000.
Kawahata, Masahiro: *See*—
Morizumi, Mitsuo; and Kawahata, Masahiro, 4,423,750, Cl. 137-413.000.
Kawai, Masato, to Nippon Electric Co., Ltd. Logic circuit with a test capability. 4,424,581, Cl. 365-154.000.
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Sami, Hiroshi; Ueda, Tatehito; Ito, Osamu; Hobo, Nobuhito; Naitou, Takashi; Nakamura, Tetsuya; Kawai, Shizuo; and Miyata, Yukinori, 4,423,713, Cl. 123-357.000.
Kawasaki, Sadanobu: *See*—
Mizuno, Shogo; Suzuki, Takao; Kawasaki, Sadanobu; and Takeda, Hideichiro, 4,424,091, Cl. 156-234.000.
Kay, Edward L.: *See*—
Gutierrez, Richard; and Kay, Edward L., 4,424,171, Cl. 524-414.000.
KCDP Corporation: *See*—
Conn, Shepard; and Kushner, Arnold, 4,424,054, Cl. 604-11.000.
Keel, Beat G.; Tran, Tuan P.; Koller, Mara M.; Zimmerman, Larry D.; and Darst, Patrick C., to Magnetic Peripherals Inc. Deposition process. 4,424,271, Cl. 430-315.000.
Keeling, Ronald J.; Roe, Jin-Young K.; and Mollmann, Henry C., to American Cyanamid Company. Hydroxyisopropylmelamine modified melamine-formaldehyde resin. 4,424,261, Cl. 428-530.000.
Keidl, Steven D.; and Shidler, Karl A., to International Business Machines Corporation. Magnetic disk-control track read through envelope. 4,424,539, Cl. 360-69.000.
Keil, John G.: *See*—
Cron, Martin J.; Keil, John G.; Lin, Jeng S.; Ruggeri, Mariano V.; and Walker, Derek, 4,424,343, Cl. 536-13.800.
Kelly, James C.; and Garnett, Fredrick W., to Starkville Tool and Die Company. Pneumatic needle positioner. 4,423,692, Cl. 112-274.000.
Kelly, Robert H.: *See*—
Moyer, Anthony M.; and Kelly, Robert H., 4,423,615, Cl. 72-326.000.
Kemp, Ian: *See*—
Treves, Barry W.; and Kemp, Ian, 4,423,760, Cl. 152-209.00R.
Kempf, Jurgen: *See*—
Brandeis, Christine; Kempf, Jurgen; Kraus, Georg; and Kunzel, Ulrich, 4,424,102, Cl. 204-192.00E.
Kendall Company, The: *See*—
Rupinskas, Vytautas R., 4,424,249, Cl. 428-195.000.
Kenichi, Yoshida, to Nissan Motor Company, Limited. Knocking detector. 4,423,621, Cl. 73-35.000.
Kerckhoff, Wilhelm, to Mannesmann Aktiengesellschaft. Crane trolley. 4,423,685, Cl. 105-150.000.
Kernforschungsanlage Julich GmbH: *See*—
Thyssen, Heinz; and Breuer, Gunter, 4,424,187, Cl. 376-245.000.
Kerwin, William J.: *See*—
Bobbett, Ronald E.; McCormick, J. Byron; and Kerwin, William J., 4,424,491, Cl. 324-433.000.
Kester, Dennis E.: *See*—
Christensen, Ronald C.; Genske, Roger P.; Kester, Dennis E.; and Ossian, William F., 4,424,256, Cl. 428-347.000.
Kettell, John; and Anderson, David, to Laycock Engineering Limited. Friction clutches. 4,423,804, Cl. 192-109.00R.
Ketterer, Hans: *See*—
Fleck, Adolf; Ketterer, Hans; and Pietsch, Gerald, 4,423,946, Cl. 354-319.000.
Jelinek, Nikolaus; Ketterer, Hans; and Schausberger, Helmut, 4,423,947, Cl. 354-320.000.
Keve, Tibor; Zsadon, Bela; Fekete, Gyorgy; Lorincz, Csaba; Galambos, Janos; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, to Richter Gedeon Vegyeszeti Gyar RT. Polycyclic compounds containing a double bond in the D-ring pharmaceutical

compositions containing them, and methods of treating psoriasis with them. 4,424,223, Cl. 424-256.000.
Key Pharmaceuticals, Inc.: *See*—
Tuttle, Ronald R., 4,424,209, Cl. 424-180.000.
Khanna, Pyare, to Syva Company. Acetaminophen analogs, antigens, and antibodies. 4,424,150, Cl. 260-112.00R.
Kicko-Walczak, Ewa J.: *See*—
Penczek, Piotr A.; Klosowska-Wolkowicz, Zofia; Kicko-Walczak, Ewa J.; and Kopec, Andrzej, 4,424,299, Cl. 525-31.000.
Kiefer, Erich: *See*—
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Kiehs, Karl: *See*—
Buerstinghaus, Rainer; Kiehs, Karl; Seufert, Walter; and Adolphi, Heinrich, 4,424,215, Cl. 424-210.000.
Kielbania, Andrew J., Jr., to Rohm and Haas Company. Polymers adherent to polyolefins. 4,424,240, Cl. 427-393.500.
Kienzle Apparate GmbH: *See*—
Dold, Berthold, 4,423,631, Cl. 73-431.000.
Kievskiy Politekhnicheskiy Institut of USSR: *See*—
Krivda, Leonid T.; Pshenichnjuk, Alexandr S.; Grosnov, Viktor I.; and Schukin, Vladimir K., 4,423,614, Cl. 72-115.000.
Kiko, Frederick J., to Reliance Electric Company. Equalizer circuit for a repeater. 4,424,499, Cl. 333-28.00R.
Kikuchi, Tetsuya: *See*—
Nagaoka, Shoji; Takiuchi, Hidefumi; Mori, Yuichi; and Kikuchi, Tetsuya, 4,424,311, Cl. 525-303.000.
Kikuchi, Yoshimi: *See*—
Eguchi, Mitsuo; Kikuchi, Yoshimi; and Ichino, Nobuyuki, 4,423,935, Cl. 354-402.000.
Kimura, Hiroshi; Hisajima, Masahiko; Shigemura, Yutaka; Yada, Isao; Irie, Yoichiro; and Morimoto, Kiyoshi, to Mita Industrial Company Limited. Dual component developing material detecting device for electrostatic copying apparatus. 4,423,948, Cl. 355-14.00D.
King, Dallas E., to General Motors Corporation. Method of assembling dynamoelectric machine brushes. 4,423,549, Cl. 29-597.000.
King, Donald L., to Envirotech Corporation. Rake drive and lifting device for sedimentation apparatus. 4,424,130, Cl. 210-531.000.
King Radio Corporation: *See*—
Cooper, Dale E.; Grillot, Ronald E.; Quick, Gary K.; and Smith, Kevin R., 4,423,920, Cl. 339-252.00R.
Kinoshita, Akira: *See*—
Kurihara, Seiji; Goto, Satoshi; Wada, Tsuneo; Kinoshita, Akira; Takei, Yoshiaki; Akashi, Naoko; and Nomori, Hiroyuki, 4,424,266, Cl. 430-59.000.
Kiraly, Arpad: *See*—
Keve, Tibor; Zsadon, Bela; Fekete, Gyorgy; Lorincz, Csaba; Galambos, Janos; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,223, Cl. 424-256.000.
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Gyulai, Zsuzsanna; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,224, Cl. 424-256.000.
Kiraly nee Soos, Gyongyver: *See*—
Keve, Tibor; Zsadon, Bela; Fekete, Gyorgy; Lorincz, Csaba; Galambos, Janos; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,223, Cl. 424-256.000.
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Gyulai, Zsuzsanna; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,224, Cl. 424-256.000.
Kirst, Herbert A.; and Truedell, Brenda A., to Eli Lilly and Company. 2-N-Acylated and 2-N-alkylated derivatives of 4-O-substituted-2-deoxystreptamine aminoglycosides and process. 4,424,344, Cl. 536-16.900.
Kirst, Herbert A.; and Truedell, Brenda A., to Eli Lilly and Company. 1-N-Acylated and 1-N-alkylated derivatives of 4-O-substituted-2-deoxystreptamine aminoglycosides and process. 4,424,345, Cl. 536-16.900.
Kitahara, Shizuo; Fujii, Toshihiro; and Sugi, Nagatoshi, to Nippon Zeon Co., Ltd. Method for modifying cis-1,4-polyisoprene rubber. 4,424,306, Cl. 525-131.000.
Kitamura, Takashi, to Canon Kabushiki Kaisha. Scanning method using a plurality of beams and apparatus therefor. 4,424,442, Cl. 250-236.000.
Klass, Donald L.; and Ghosh, Sambhunath, to United Gas Pipe Line Company. Methane production from and beneficiation of anaerobic digestion of aquatic plant material. 4,424,064, Cl. 48-197.00A.
Kleemann, Axel; and Samson, Marc, to Degussa Aktiengesellschaft. Cyclic acetals of N-acylglutamic acid-γ-semialdehydes, process for their production and use. 4,424,370, Cl. 549-373.000.
Kleinsasser, Alan W.: *See*—
Harper, James M. E.; and Kleinsasser, Alan W., 4,424,104, Cl. 204-192.00N.
Kleinschmit, Peter: *See*—
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Klemarczyk, Philip T.: *See*—
Sprecker, Mark A.; Klemarczyk, Philip T.; and Belko, Robert P., 4,424,379, Cl. 568-446.000.
Kliose, Solomon S.; and Ehrgott, Frederick J., to Hoechst-Roussel Pharmaceuticals, Inc. Process for preparing 4-aryloxy-3-phenylpiperidines. 4,424,357, Cl. 546-207.000.
Klippert, Heinz; Tzschoppe, Eberhard; Paschalis, Stratos; Weinlich, Jurgen; and Engelmann, Manfred, to Hoechst Aktiengesellschaft. Continuous process and device for the manufacture of a vinyl chloride polymer in aqueous suspension. 4,424,301, Cl. 525-53.000.
KLM Company: *See*—
Vangor, William, 4,423,820, Cl. 215-252.000.
Klosowska-Wolkowicz, Zofia: *See*—
Penczek, Piotr A.; Klosowska-Wolkowicz, Zofia; Kicko-Walczak, Ewa J.; and Kopec, Andrzej, 4,424,299, Cl. 525-31.000.
Knape & Vogt Manufacturing Co.: *See*—
Vander Ley, Robert J., 4,423,914, Cl. 312-333.000.
Knapp, Jules F., to United Coatings, Inc. Molded container. 4,423,811, Cl. 206-362.300.
Knapp, Robert L.: *See*—
Omholt, Bruce D.; and Knapp, Robert L., 4,423,573, Cl. 52-145.000.
Knappe, Ortwin: *See*—
Botzem, Werner; Knappe, Ortwin; and Srostlik, Peter, 4,423,802, Cl. 188-377.000.
Knifton, John F.: *See*—
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Knott, Joseph, to Siemens Aktiengesellschaft. Device for the disaggregation of powdery material in a reservoir. 4,423,962, Cl. 366-279.000.
Kobayashi, Ikuo: *See*—
Nagai, Takeshi; Yamamoto, Kazushi; and Kobayashi, Ikuo, 4,424,507, Cl. 338-22.00R.
Kobayashi, Kazuo: *See*—
Ara, Katsuyuki; Wakayama, Nacaki; Kobayashi, Kazuo; and Ogasawara, Toshihiko, 4,423,629, Cl. 73-295.000.
Kobayashi, Susumu: *See*—
Hatao, Itsuro; and Kobayashi, Susumu, 4,424,513, Cl. 340-805.000.
Kobiske, Michael H.; and Pepi, Jerome S., to Maremont Corporation. Shock absorber with improved compression valve mechanism. 4,423,800, Cl. 188-277.000.
Kobryn, Ronald J., to Precision Handling Devices, Inc. Print head. 4,423,969, Cl. 400-124.000.
Kodama, Kazuo; and Tsukiji, Yoshihiro, to Kabushiki Kaisha Komatsu Seisakusho. Crankshaft milling machine. 4,423,990, Cl. 409-132.000.
Koegel, Robert J.: *See*—
Lange, Ronald E.; and Koegel, Robert J., 4,424,576, Cl. 364-900.000.
Koike, Mikio: *See*—
Hanyu, Susumu; Koike, Mikio; and Hara, Kazumasa, 4,423,693, Cl. 112-324.000.
Koike, Norio; and Ikari, Kunihiro, to Tokyo Shibaura Denki Kabushiki Kaisha. Method of making picture tube fluorescent screen. 4,424,265, Cl. 430-28.000.
Koinuma, Kazuo; and Yamazaki, Masami, to Victor Company of Japan, Limited. Apparatus and method for multi-track recording of a digital signal. 4,424,541, Cl. 360-75.000.
Kolesnik, Anatoly G.: *See*—
Pakhomov, Gennady N.; Luste, Anita Y.; Kolesnik, Anatoly G.; Demishev, Vasily N.; Pashinina, Eva L.; Mordvinova, Maria V.; Morozova, Lilia V.; Boginskaya, Lidia M.; Voskresenskaya, Irina B.; Onadchuk, Sara Z.; and Kadnikova, Galina I., 4,424,203, Cl. 424-52.000.
Koller, Mara M.: *See*—
Keel, Beat G.; Tran, Tuan P.; Koller, Mara M.; Zimmerman, Larry D.; and Darst, Patrick C., 4,424,271, Cl. 430-315.000.
Kollmorgen Technologies Corporation: *See*—
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Kondo, Hideyo; and Fujimura, Naoto, to Canon Kabushiki Kaisha. Electrophotographic image holding member. 4,424,267, Cl. 430-66.000.
Kondo, Mitsuo: *See*—
Minamino, Hiromi; Kondo, Mitsuo; Otani, Yasuhisa; Miyashita, Akira; Okada, Kenzo; and Kuramoto, Takashi, 4,424,204, Cl. 424-63.000.
Konishiroku Photo Industry Co., Ltd.: *See*—
Kurihara, Seiji; Goto, Satoshi; Wada, Tsuneo; Kinoshita, Akira; Takei, Yoshiaki; Akashi, Naoko; and Nomori, Hiroyuki, 4,424,266, Cl. 430-59.000.
Kopec, Andrzej: *See*—
Penczek, Piotr A.; Klosowska-Wolkowicz, Zofia; Kicko-Walczak, Ewa J.; and Kopec, Andrzej, 4,424,299, Cl. 525-31.000.
Koppers Company, Inc.: *See*—
Kozy, Michael J., 4,424,099, Cl. 201-41.000.
Leston, Gerd, 4,424,381, Cl. 568-753.000.
Korchnak, Joseph D.; and Fett, Richard H. G., to UNC Recovery Corporation. Recovery of organic extractant from secondary emulsions formed in the extraction of uranium from wet-process phosphoric acid. 4,424,195, Cl. 423-10.000.
Koreeda, Toshio: *See*—
Nojiri, Akio; Sawasaki, Takashi; and Koreeda, Toshio, 4,424,293, Cl. 524-101.000.
Koren, Jacob: *See*—
Inbar, Dan; Gafni, Giora; Grimberg, Ernest; and Koren, Jacob, 4,424,446, Cl. 250-363.00S.
Korwin, Paul; and Korwin, Robert. Arrangement for, method of, and device for use in taking dental impressions and in restoring teeth. 4,424,034, Cl. 433-40.000.
Korwin, Robert: *See*—
Korwin, Paul; and Korwin, Robert, 4,424,034, Cl. 433-40.000.
Kosaka, Masahiro: *See*—
Maeda, Mikio; Kosaka, Masahiro; and Higashiyama, Katsuhiko, 4,424,556, Cl. 363-17.000.
Kosmowski, Wojciech B., to Cooper Industries, Inc. Hydraulic chuck. 4,423,880, Cl. 279-4.000.

Kosoczky, Ibolya: *See*—
Benko, Pal; Kovanyi, Gyorgyi nee Lax; Timar, Judit nee Gergely; Sigmond, Maria nee Lakatos; Petocz, Lujza; Gorog, Peter; Kosoczky, Ibolya; Szirt, Eniko nee Kiszelly; and Toncsev, Hristone, 4,424,351, Cl. 542-439.000.

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Koyama, Kazumi: *See*—
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Koyama, Kazuo: *See*—
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Koyama, Masao; Matao, Syuitu; Nakayama, Chiaki; and Hoshina, Katsumi, to Toshiba Ceramics Co., Ltd. Constituent members of a semiconductor element-manufacturing apparatus and a reaction furnace for making said constituent members. 4,424,193, Cl. 422-248.000.

Koyama, Toshitsugu: *See*—
Okigami, Noboru; Sekiguchi, Yoshitoshi; Hayasaka, Hiroshi; Koyama, Toshitsugu; Fujioka, Takeo; and Yoshimitsu, Takeshi, 4,424,017, Cl. 431-3.000.

Kozy, Michael J., to Koppers Company, Inc. Process for control of coke oven emissions. 4,424,099, Cl. 201-41.000.

Kraemer, John F.: *See*—
Seeney, Charles E.; Kraemer, John F.; and Ingebrigtsen, Janis, 4,423,764, Cl. 164-528.000.

Kraftwerk Union Aktiengesellschaft: *See*—
Bege, Dietmar; Faust, Hans-Joachim; Puthawala, Anwer; and Stunkel, Helmut, 4,424,149, Cl. 252-629.000.

Kralik, Douglas R.; and Mitchell, Hal D., to A-T-O Inc. Suspension system for headgear. 4,423,524, Cl. 2-416.000.

Kramer, Daniel E. Water defrost evaporator with non-uniform water distribution and visual overflow. 4,423,601, Cl. 62-82.000.

Kramer, George M., to Exxon Research and Engineering Co. Adamantyl carboxylic and sulfonic acid catalyzed paraffin isomerization. 4,424,387, Cl. 585-743.000.

Kramer, Henry M.: *See*—
Jordan, Peter J., 4,423,849, Cl. 248-165.000.

Kraus, Georg: *See*—
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Krauth, Axel: *See*—
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Krautler, Wilhelm: *See*—
Junkers, John K.; and Krautler, Wilhelm, 4,423,649, Cl. 81-57.390.

Krebs, Helmut: *See*—
Widran, Jerrold; and Krebs, Helmut, 4,423,727, Cl. 128-303.150.

Kreeger, Elsmer W.; and Stahl, Edward L., to Pinckney Molded Plastics, Inc. Multilevel stacking container. 4,423,813, Cl. 206-506.000.

Krenz, Horst M., to Heath Company. Form trimming apparatus and method for line printer. 4,423,975, Cl. 400-616.000.

Kress, Dieter; and Haberle, Friedrich, to Mapal Fabrik fur Prazisionswerkzeuge Dr. Kress AG. Machine tool assembly with rotatable cutting tool. 4,423,989, Cl. 408-197.000.

Kreuder, Hans J.: *See*—
Meyer, Rolf-Volker; Kreuder, Hans J.; and de Cleur, Eckhard, 4,424,353, Cl. 544-253.000.

Kreuder, Hans-Joachim: *See*—
Me[illegible]-Volker; Kreuder, Hans-Joachim; and Hohlein, Peter, [illegible], Cl. 525-438.000.

Krivd[illegible]d T.; Pshenishnjuk, Alexandr S.; Gromov, Viktor I.; and Schuk[illegible], Vladimir K., to Kievskiy Politekhnichesky Institut of USSR. Apparatus for shaping articles by rolling. 4,423,614, Cl. 72-115.000.

Kroenke, William J., to B. F. Goodrich Company, The. Dimethyldioctadecylammonium molybdates. 4,424,164, Cl. 260-429.00R.

Kroll, Charles T.: *See*—
Farrar, Paul A.; Geffken, Robert M.; and Kroll, Charles T., 4,423,547, Cl. 29-571.000.

Krubsack, Larry J.: *See*—
Krubsack, Ronald H.; Caruso, Jerome C.; and Krubsack, Larry J., 4,424,555, Cl. 362-419.000.

Krubsack, Ronald H.; Caruso, Jerome C.; and Krubsack, Larry J., to Hartland Products Company, Inc. Concealable lighting fixture. 4,424,555, Cl. 362-419.000.

Kruger, Bradford E.; and Parr, John C., to International Telephone and Telegraph Corporation. Around-the-mast rotary coupler with individual power module excitation. 4,424,516, Cl. 343-763.000.

Krupp Kautex Machinenbau GmbH: *See*—
Daubesbuchel, Werner; Hess, Dieter; and Kiefer, Erich, 4,424,178, Cl. 264-40.100.

Krutchen, Charles M.: *See*—
Johnson, D. Emil; Krutchen, Charles M.; and Sharps, G. Vincent, Jr., 4,424,287, Cl. 521-74.000.

Krutenat, Richard C.: *See*—
Polizzotti, Richard S.; and Krutenat, Richard C., 4,424,083, Cl. 148-12.00E.

Kuboichi, Koichi, to Eagle Industry Co., Ltd. Actuator. 4,423,642, Cl. 74-2.000.

Kuchar, James F.: *See*—
Mehrens, Douglas W.; and Kuchar, James F., 4,424,007, Cl. 417-360.000.

Kuchuris, George F.: *See*—
Yatsushiro, Kenji; and Kuchuris, George F., 4,424,505, Cl. 336-90.000.

Kudo, Kazuhiko: *See*—
Matsuda, Masami; Chino, Koichi; and Kudo, Kazuhiko, 4,424,016, Cl. 425-144.000.

Kuhne, Norbert: *See*—
Rahse, Wilfried; Kuhne, Norbert; and Wust, Willi, 4,424,347, Cl. 536-91.000.

Kulischenko, Walter; and Capdevielle, Martin J., to Pennwalt Corporation. Rigid high speed flexible shaft casing assembly for tight radii installations. 4,424,045, Cl. 464-52.000.

Kullinger, Kenneth; and Mattsson, Mats, to ASEA Aktiebolag. Transformer with a controlled flow of cooling liquid. 4,424,502, Cl. 336-57.000.

Kumagai, Henry Y., to Western Electric Co., Inc. R-F Electrode type workholder and methods of supporting workpieces during R-F powered reactive treatment. 4,424,096, Cl. 156-643.000.

Kummer, Rudolf: *See*—
Schneider, Kurt; Kummer, Rudolf; Schwirten, Kurt; Schindler, Hans-Dieter, deceased; Schindler, Maria E., heir-at-law; Lang, Ute, heir-at-law; and Schindler, Rainer, heir-at-law, 4,424,394, Cl. 560-105.000.

Kuno, Masaya. Hydrostripping process of crude oil. 4,424,117, Cl. 208-211.000.

Kunzel, Ulrich: *See*—
Brandeis, Christine; Kempf, Jurgen; Kraus, Georg; and Kunzel, Ulrich, 4,424,102, Cl. 204-192.00E.

Kuo, Hong-Hsiang, to General Motors Corporation. Brush feeder for disposal of thermoplastic waste in a fluidized bed reactor. 4,423,688, Cl. 110-245.000.

Kuramoto, Takashi: *See*—
Minamino, Hiromi; Kondo, Mitsuo; Otani, Yasuhisa; Miyashita, Akira; Okada, Kenzo; and Kuramoto, Takashi, 4,424,204, Cl. 424-63.000.

Kureha Kagaku Kogyo Kabushiki Kaisha: *See*—
Nishimoto, Yoshiharu; and Yamazaki, Kengo, 4,424,243, Cl. 428-36.000.

Kurihara, Keishiro; Nakayama, Tetsuya; and Moritoki, Masakazu, to Kabushiki Kaisha Komatsu Seisakusho. Load control device for a working tool of a construction vehicle. 4,423,785, Cl. 172-3.000.

Kurihara, Seiji; Goto, Satoshi; Wada, Tsuneo; Kinoshita, Akira; Takei, Yoshiaki; Akashi, Naoko; and Nomori, Hiroyuki, to Konishiroku Photo Industry Co., Ltd. Layered electrophotographic photosensitive element having hydrazone charge transport material. 4,424,266, Cl. 430-59.000.

Kuro, Jun-ichi: *See*—
Enoshima, Toshio; and Kuro, Jun-ichi, 4,424,477, Cl. 320-61.000.

Kurobane, Itsuo; Vining, Leo C.; and McInnes, Alister G., to Asahi Kasei Kogyo Kabushiki Kaisha. Secalonic acids. 4,424,373, Cl. 549-393.000.

Kuroda, Sigeaki: *See*—
Oguni, Kensaku; Yasuda, Hiromu; and Kuroda, Sigeaki, 4,423,603, Cl. 62-324.100.

Kuroiwa, Hiroshi: *See*—
Nishimura, Yutake; Oyama, Yoshishige; Kuroiwa, Hiroshi; and Osuga, Minoru, 4,424,568, Cl. 364-431.070.

Kurtz, Leonard D.; and LiCausi, Joseph, to BioResearch Inc. Disposable autotransfusion device. 4,424,053, Cl. 604-4.000.

Kurtz, Walter; and Lamm, Gunther, to BASF Aktiengesellschaft. Aminoazo compounds. 4,424,155, Cl. 260-157.000.

Kurz, Robert A.; and Palumbo, Anthony J., to Westinghouse Electric Corp. Stabilization of perchloroethylene dielectric fluids. 4,424,147, Cl. 252-575.000.

Kushner, Arnold: *See*—
Conn, Shepard; and Kushner, Arnold, 4,424,054, Cl. 604-11.000.

Kusumgar, Rajal M.: *See*—
DiEdwardo, Andrew H.; and Kusumgar, Rajal M., 4,424,307, Cl. 525-154.000.

Kuttner, Klaus, to Robert Bosch GmbH. Thin-film electronic circuit unit. 4,424,409, Cl. 174-68.500.

Kyle, James C. Insulating material and method of making material. 4,424,090, Cl. 156-89.000.

L.C.C.-C.I.C.E. Compagnie Europeene de Composants Electroniques: *See*—
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L. & C. Steinmuller GmbH: *See*—
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Ladue, Charles: *See*—
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Laesser, Claude, to Ebauches, S.A. Liquid crystal display device. 4,423,928, Cl. 350-335.000.

Lagergren, Lars; and Lindstrom, Wictor C. O. Device for frame profiles. 4,423,575, Cl. 52-211.000.

Lagoutte, Pierre: *See*—
Chavey, Christian; and Lagoutte, Pierre, 4,424,417, Cl. 179-2.00E.

LaHann, Thomas R.; and Buckwalter, Brian L., to Procter & Gamble Company, The. Hydroxyphenylacetamides having analgesic and anti-irritant activity. 4,424,205, Cl. 424-72.000.

Lalloz, Guy; and Joly, Gabriel, to Saplest S.A. Process for the production of expanded synthetic material articles having variable physical characteristics. 4,424,180, Cl. 264-51.000.

Lamb, Lloyd T.: *See*—
Denton, Clyde J.; and Lamb, Lloyd T., 4,424,486, Cl. 324-225.000.

Lambeth, David N.; Lee, James K.; and Frank, Lee F., to Eastman Kodak Company. Photographic camera with digital controller and method of manufacture. 4,423,934, Cl. 354-412.000.

Lamm, Gunther: *See*—
Dehnert, Johannes; Loffler, Hermann; and Lamm, Gunther, 4,424,154, Cl. 260-156.000.
Kurtz, Walter; and Lamm, Gunther, 4,424,155, Cl. 260-157.000.

Land, Edwin H.; Bronstein-Bonte, Irena Y.; and Taylor, Lloyd D., to Polaroid Corporation. Copolymeric mordants. 4,424,326, Cl. 526-265.000.

Land, Robert B.: *See*—
Growden, Murray W., 4,423,790, Cl. 172-750.000.

Lang, Sandra J.: *See*—
Growden, Murray W., 4,423,790, Cl. 172-750.000.

Lang, Ute, heir-at-law: *See*—
Schneider, Kurt; Kummer, Rudolf; Schwirten, Kurt; Schindler, Hans-Dieter, deceased; Schindler, Maria E., heir-at-law; Lang, Ute, heir-at-law; and Schindler, Rainer, heir-at-law, 4,424,394, Cl. 560-105.000.

Lange, Ronald E.; and Koegel, Robert J., to Honeywell Information Systems Inc. Maintenance panel for communicating with an automated maintenance system. 4,424,576, Cl. 364-900.000.

Langhoff, Josef; and Seipenbusch, Jurgen. Method for the gasification and preparation of a water-carbon slurry. 4,424,065, Cl. 48-197.00R.

Langmead, David L. System for extending the capacity of a pick-up truck and the like. 4,423,899, Cl. 296-3.000.

Larguia, Constancio. Arrangements for selectively changing the radiation and vibration transmission properties of panels. 4,423,577, Cl. 52-171.000.

Laroche, Pierre A. R. M.; Hoarau, Roland J.; and Brault, Patrice G. M., to Office National d'Etudes et de Recherches Aerospatiales (O.N.E.R.A.). Apparatus for measuring an electrical field. 4,424,481, Cl. 324-72.000.

Larson, Allen L., to Bell Telephone Laboratories, Incorporated. Channel interface circuit with high speed data message header field translation and direct memory access. 4,424,565, Cl. 364-200.000.

Laude, Michael; Marra, Michael; Stone, Corbett W.; and Vartoukian, Artin G., to Singer Company, The. Fabric shearing and heating tool. 4,424,094, Cl. 156-513.000.

Lauffer, Donald E., to Phillips Petroleum Company. Dispersion coefficient determination. 4,424,487, Cl. 324-307.000.

Laun, Arthur: *See*—
Fey, Rainer; Dumbser, Gerhard; and Laun, Arthur, 4,424,548, Cl. 361-152.000.

Laurel Bank Machine Company: *See*—
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Lautenbach, Dieter: *See*—
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Law, Peter L.: *See*—
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Lawson, John A.: *See*—
Thomas, E. Raymond; Cahill, Lysle D.; Marshall, William W.; Talley, Luke L.; Lawson, John A.; and Wilcox, Brian N., 4,424,589, Cl. 382-61.000.

Laycock Engineering Limited: *See*—
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Leake, Craig H.; and Silano, Michael A., to National Starch and Chemical Corporation. Corrugating adhesive composition and paperboard product produced therewith. 4,424,291, Cl. 524-47.000.

Lebedev, Vladimir K.: *See*—
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Leca, Jean-Paul: *See*—
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Lee, Ja H.; Hohl, Frank; and Weaver, Willard R., to United States of America, National Aeronautics and Space Administration. Solar pumped laser. 4,424,592, Cl. 372-79.000.

Lee, James K.: *See*—
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Lee, Richard H.; Cullen, Steven R.; Bailen, Eddie H.; Rasmussen, David H.; and Johnson, William C., to Ag-Bag Corporation. Method and apparatus for manufacturing an agricultural bag. 4,424,051, Cl. 493-37.000.

Lee, Thomas B.: *See*—
Bastick, John R.; Fuher, John; Hardern, David N.; and Lee, Thomas B., 4,424,231, Cl. 424-274.000.

Lee, William J. Display and storage assembly utilizing a plurality of interchangeable stackable bins. 4,423,913, Cl. 312-107.000.

Leen, Morris W.: *See*—
Lewis, Arthur M.; and Leen, Morris W., 4,424,521, Cl. 346-140.00R.

Leland Stanford Junior University, Board of Trustees of the: *See*—
Hellman, Martin E.; and Pohlig, Stephen C., 4,424,414, Cl. 178-22.110.

Lelong, Pierre H.; and Ott, Jean H., to U.S. Philips Corporation. Gamma camera comprising an electronic device for the correction of linearity errors. 4,424,447, Cl. 250-363.00S.

Lendle, Eberhard: *See*—
Lipka, Erich; and Lendle, Eberhard, 4,424,097, Cl. 156-656.000.

Lengronne, Bernard: *See*—
Minjolle, Louis; Lengronne, Bernard; Calvet, Joseph; and Chateigner, Serge, 4,424,179, Cl. 264-44.000.

Lents, Charles M.; and Swanson, Craig A., to Stainless Icetainer Company. Apparatus for storing and dispensing particulate ice. 4,423,830, Cl. 222-146.00C.

Le Page, Jean-Francois: *See*—
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Lerner, Bernard J. Prilling. 4,424,072, Cl. 71-28.000.

Lerot, Luc: *See*—
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Leston, Gerd, to Koppers Company, Inc. Process for separating dihydric phenols. 4,424,381, Cl. 568-753.000.

Leuchtturm Albenverlag Paul Koch KG: *See*—
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Leuthold, Oskar, to Ebauches Electroniques. Voltage level detecting circuit. 4,424,457, Cl. 307-350.000.

Leutner, Volkmar: *See*—
Heiser, Joachim; and Leutner, Volkmar, 4,423,747, Cl. 137-85.000.

Leuvelink, Gerrit W. E., to T.T. Haaksbergen B.V. Method for the production of a link-belt. 4,423,543, Cl. 29-433.000.

Lever Brothers Company: *See*—
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Leverenz, Klaus: *See*—
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Levitt, George, to Du Pont de Nemours, E. I., and Company. Herbicidal sulfonamides. 4,424,073, Cl. 71-92.000.

Levy, Norman, to Plasco, Inc. Midstream sampling of catheterized liquid flow from a body cavity and improved coupling therefor. 4,423,741, Cl. 128-768.000.

Levy, Sidney. Continuous process for producing N-butanol employing anaerobic fermentation. 4,424,275, Cl. 435-160.000.

Lewis, Arthur M.; and Leen, Morris W., to Exxon Research and Engineering Co. Ink jet apparatus and reservoir. 4,424,521, Cl. 346-140.00R.

Lewis, Martyn A.; Penniman, Steven K.; and Sutton, David A., to DMA Systems Corporation. Method and apparatus for recording transducer positioning information. 4,424,543, Cl. 360-135.000.

LiCausi, Joseph: *See*—
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Lieberman, David M. Cam-guided trephine. 4,423,728, Cl. 128-310.000.

Liebmann, Bonnie J.: *See*—
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Lightolier Incorporated: *See*—
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Lin, Jeng S.: *See*—
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Lin, Jiang-Jen; and Knifton, John F., to Texaco Inc. Process for homologation of methanol to ethanol. 4,424,384, Cl. 568-902.000.

Lin, Kun-Shan, to Texas Instruments Incorporated. Formant tracker. 4,424,415, Cl. 381-39.000.

Lincoln, Frank H.: *See*—
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Lipka, Erich; and Lendle, Eberhard, to Elget Ing.-Buro fur Grafische und Elektronische Technik. Metal stripping process and composition. 4,424,097, Cl. 156-656.000.

Litton Industrial Products, Inc.: *See*—
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Liu, Ping Y., to General Electric Company. Composition of an aromatic carbonate polymer, a styrene-butadiene styrene radial black copolymer and an acrylate copolymer. 4,424,303, Cl. 525-67.000.

Livingston, Arnold M. Oil recovery system and process. 4,423,779, Cl. 166-250.000.

Lloyd, William A.; McFarland, Keith E.; and Smith, Kenneth E., to Xerox Corporation. Capacitive electrostatic stylus writing with counter electrodes. 4,424,522, Cl. 346-154.000.

LMT Radio Professionnelle: *See*—
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Loctite Corporation: *See*—
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Loffler, Hermann: *See*—
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Lohmann, Dieter: *See*—
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Lohr, Delmar F.; and Schulz, Donald N., to Firestone Tire & Rubber Company, The. Molecular weight distribution and microstructure modifiers for elastomers. 4,424,323, Cl. 526-180.000.
Lokken, Oddvin. Anti-splash cup for dental prophylaxis. 4,424,036, Cl. 433-116.000.
Lomas, David A.; and Thompson, Gregory J., to UOP Inc. Fluid catalyst regeneration apparatus. 4,424,192, Cl. 422-109.000.
Long, Alvin L. Universal air deflector. 4,423,668, Cl. 98-2.120.
Long, Robert B.: *See*—
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Loomis, Russell M., to Unarco Industries, Inc. Replacement hasp, kit, and method for replacing railroad car lock hasps. 4,423,896, Cl. 292-284.000.
Loreto, Wilfredo P.: *See*—
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Lorig, Bernard; Rahuel, Jean-Claude; and Roux, Catherine, to Etablissement Public de Diffusion dit Telediffusion de France; and Lorig, Bernard. Device for the digital transmission and display of graphics and/or of characters on a screen. 4,424,572, Cl. 364-900.000.
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Lorincz, Robert S.; Masucci, Carmine; and Bull, Daniel N., to New Brunswick Scientific Co., Inc. Modular instrumentation for monitoring and control of biochemical processes. 4,424,559, Cl. 364-131.000.
Lostak, Charles: *See*—
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Pakhomov, Gennady N.; Luste, Anita Y.; Kolesnik, Anatoly G.; Demishev, Vasily N.; Pashinina, Eva L.; Mordvinova, Maria V.; Morozova, Lilia V.; Boginskaya, Lidia M.; Voskresenskaya, Irina B.; Osadchuk, Sara Z.; and Kadnikova, Galina I., 4,424,203, Cl. 424-52.000.
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MacMillan Bloedel Limited: *See*—
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Madden, Allen C.; and Mitchell, Albert L., to QYL Inc. Method and apparatus to determine the imbalance in a rotating object. 4,423,632, Cl. 73-462.000.
Maeda, Mikio; Kosaka, Masahiro; and Higashiyama, Katsuhiko, to Matsushita Electric Industrial Co., Ltd. Self-oscillating DC to DC converter. 4,424,556, Cl. 363-17.000.
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Maffrand, Jean-Pierre; Suzuki, Norio; Matsubayashi, Kynichi; and Ashida, Shinichiro, to Sanofi. Process for the preparation of 5,6,7,7a-tetrahydro-4H-thieno-[3,2,-c]pyridin-2-one. 4,424,356, Cl. 546-114.000.
Magee, Thomas A.; Battershell, Robert D.; Limpel, Lawrence E.; Ho, Andrew W.; Friedman, Arthur W.; Corkins, H. Glenn; Brand, William W.; Buchman, Russell; Storace, Louis; and Osgood, Edmond R., to SDS Biotech Corporation. Biologically active heterobicyclic hydroximidates and thiolhydroximidates and carbamate ester derivatives thereof. 4,424,213, Cl. 424-184.000.
Magera, Matthias R. Reinforced insulation for water cooled pipes. 4,424,028, Cl. 432-234.000.
Magnavox Consumer Electronics Company: *See*—
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Mahnke, Parker E., to Marcy Gymnasium Equipment Co. Exercise bench. 4,423,865, Cl. 272-123.000.
Maijer, Rolf; and Starck, James U., to Baxter Travenol Laboratories, Inc. Lingual placement device. 4,424,029, Cl. 433-3.000.
Makino Milling Machine Co., Ltd.: *See*—
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Malin, John L. Gold dredge suction nozzle. 4,423,559, Cl. 37-58.000.
Malloy, John D., to General Motors Corporation. Torque converter clutch with a temperature regulator valve. 4,423,803, Cl. 192-3.290.
Malric, Henri-Bernard, to Centre de Recherche Industrielle du Quebec. Ceramic foams and process of preparing the same. 4,424,280, Cl. 501-84.000.
Mamet, Manfred; Fischer, Dietrich; Tuemmler, Gerhard; and Niederhuefner, Detlev, to Siemens AG. High voltage probe for gas insulated high voltage switching insulation. 4,424,490, Cl. 324-424.000.
Mamiya Koki Kabushiki Kaisha: *See*—
Eguchi, Mitsuo; Kikuchi, Yoshimi; and Ichino, Nobuyuki, 4,423,935, Cl. 354-402.000.
Mangold, Dietrich: *See*—
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Mannesmann Aktiengesellschaft: *See*—
Kerckhoff, Wilhelm, 4,423,685, Cl. 105-150.000.
Manning, John D., to Carrier Corporation. Method and apparatus for controlling the capacity of a reciprocating compressor. 4,424,005, Cl. 417-53.000.
Mapal Fabrik fur Prazisionswerkzeuge Dr. Kress AG: *See*—
Kress, Dieter; and Haberle, Friedrich, 4,423,989, Cl. 408-197.000.
Marathon Oil Company: *See*—
Merrill, LaVaun S., Jr., 4,424,021, Cl. 432-14.000.
Marcellis, Alphonso W.: *See*—
Villa, Jose L.; Sinka, Joseph V.; Marcellis, Alphonso W.; and Fleming, Joseph P., 4,424,074, Cl. 106-90.000.
Marconi Company Limited, The: *See*—
Clarke, Samuel L. H.; and Inder, Robert W., 4,424,575, Cl. 364-900.000.
Marcy Gymnasium Equipment Co.: *See*—
Mahnke, Parker E., 4,423,865, Cl. 272-123.000.
Maremont Corporation: *See*—
Kobiske, Michael H.; and Pepi, Jerome S., 4,423,800, Cl. 188-277.000.
Marhofer, Gerd: *See*—
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Marin, Roger A.: *See*—
Karlock, James A.; and Marin, Roger A., 4,424,528, Cl. 358-39.000.
Marini, Jean: *See*—
Audenard, Bernard; and Marini, Jean, 4,423,634, Cl. 73-587.000.
Markofsky, Sheldon B., to W. R. Grace & Co. Synthesis of nitromethane. 4,424,385, Cl. 568-948.000.
Marra, Michael: *See*—
Laude, Michael; Marra, Michael; Stone, Corbett W.; and Vartoukian, Artin G., 4,424,094, Cl. 156-513.000.
Marshall, Robert, to Davy-Loewy Limited. Rolling mill roll. 4,423,541, Cl. 29-117.000.
Marshall, William W.: *See*—
Thomas, E. Raymond; Cahill, Lysle D.; Marshall, William W.; Talley, Luke L.; Lawson, John A.; and Wilcox, Brian N., 4,424,589, Cl. 382-61.000.
Marsocci, Angelo A.; Powers, Robert B.; and Chapman, Bruce E., to American District Telegraph Company. Multidirectional mount for electrical instruments. 4,424,553, Cl. 361-427.000.
Martin, Edward T., to Axis Products Limited. Separator apparatus. 4,424,125, Cl. 210-104.000.
Maruta, Keiichi; and Yuyama, Yukihiro, to Ricoh Company, Ltd. Thermosensitive-recording-type label sheet. 4,424,245, Cl. 428-40.000.

Maruzen Kasei Co., Ltd.: *See*—
Minamino, Hiromi; Kondo, Mitsuo; Otani, Yasuhisa; Miyashita, Akira; Okada, Kenzo; and Kuramoto, Takashi, 4,424,204, Cl. 424-63.000.

Maschinenfabrik J. Dieffenbacher GmbH & Co.: *See*—
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Mashikhin, Anatoly D.: *See*—
Bukhshtaber, Eliazar Y.; Andreev, Jury M.; Askinazi, Mikhail P.; Mashikhin, Anatoly D.; Plotnikov, Egor P.; and Anders, Vitaly L., 4,424,478, Cl. 322-63.000.

Massachusetts General Hospital: *See*—
Holick, Michael F., 4,424,161, Cl. 260-397.200.

Masucci, Carmine: *See*—
Lorincz, Robert S.; Masucci, Carmine; and Bull, Daniel N., 4,424,559, Cl. 364-131.000.

Masuda, Mutsuo; Takagi, Yasuyuki; and Ashizaki, Shigeya, to Matsushita Electronics Corporation. Cathode-ray tube having a mixture of long and short persistence phosphors. 4,424,467, Cl. 313-467.000.

Mather, Frank W., III; Preussner, Andreas; and Berry, Gaylord L., to Cordis Dow Corp. Rigid shell expansible blood reservoir, heater and hollow fiber membrane oxygenator assembly. 4,424,190, Cl. 422-46.000.

Matsubayashi, Kynichi: *See*—
Maffrand, Jean-Pierre; Suzuki, Norio; Matsubayashi, Kynichi; and Ashida, Shinichiro, 4,424,356, Cl. 546-114.000.

Matsuda, Masami; Chino, Koichi; and Kudo, Kazuhiko, to Hitachi, Ltd. Granulating apparatus. 4,424,016, Cl. 425-144.000.

Matsuda, Yasumasa; Sagae, Syoji; and Kasahara, Masatoshi, to Hitachi, Ltd.; and Hitachi Koki Co., Ltd. Ink jet printing apparatus. 4,424,520, Cl. 346-140.00R.

Matsui, Isamu, to Mutata Kikai Kabushiki Kaisha. Pneumatic yarn splicing device. 4,423,586, Cl. 57-22.000.

Matsumoku Kogyo Kabushiki Kaisha: *See*—
Yamagami, Takayoshi, 4,423,654, Cl. 84-1.150.

Matsumoto, Katsutoshi, to Dainippon Screen Mfg. Co., Ltd. Apparatus for ergaging impression cylinder. 4,423,678, Cl. 101-248.000.

Matsumoto, Noriyuki: *See*—
Yagi, Akira; Nishimura, Haruo; Bandai, Shinji; Kajimaki, Masao; Nakajima, Yoshihiro; and Matsumoto, Noriyuki, 4,423,532, Cl. 15-182.000.

Matsumoto, Takao; Ichikawa, Yoshiyuki; and Nagata, Takeo, to Showa Oil Company, Ltd. Process for producing citric acid from hydrocarbons by fermentation. 4,424,274, Cl. 435-144.000.

Matsuoka, Toshio, to Sumitomo Heavy Industries, Ltd. Method and apparatus for temperature control in heating furnaces. 4,424,023, Cl. 432-19.000.

Matsushita Electric Industrial Co., Ltd.: *See*—
Maeda, Mikio; Kosaka, Masahiro; and Higashiyama, Katsuhiko, 4,424,556, Cl. 363-17.000.
Nagai, Takeshi; Yamamoto, Kazushi; and Kobayashi, Ikuo, 4,424,507, Cl. 338-22.00R.
Rzeszewski, Theodore S., 4,424,533, Cl. 358-167.000.
Yano, Tsutomu; Hayakawa, Yoshihiro; Tachita, Ryobun; Irioka, Kazuyoshi; Fukukita, Hiroshi; and Fukumoto, Akira, 4,423,737, Cl. 128-661.000.

Matsushita Electronics Corporation: *See*—
Masuda, Mutsuo; Takagi, Yasuyuki; and Ashizaki, Shigeya, 4,424,467, Cl. 313-467.000.

Matsuura, Masahiko: *See*—
Morita, Yasuyuki; Yokooku, Katsuhiko; Shiraishi, Hideo; and Matsuura, Masahiko, 4,423,705, Cl. 123-41.020.

Matsuzawa, Yasue: *See*—
Oki, Toshikazu; Yoshimoto, Akihiro; Matsuzawa, Yasue; Ishikura, Tomoyuki; Umezawa, Hamao; and Takeuchi, Tomio, 4,424,342, Cl. 536-6.400.

Matthiessen, Hans: *See*—
Winkler, Jorg; Matthiessen, Hans; and Warncke, Ernst, 4,423,723, Cl. 128-202.220.

Mattsson, Mats: *See*—
Kullinger, Kenneth; and Mattsson, Mats, 4,424,502, Cl. 336-57.000.

Matuo, Syuitu: *See*—
Koyama, Masao; Matuo, Syuitu; Nakayama, Chiaki; and Hoshina, Katsumi, 4,424,193, Cl. 422-248.000.

Maul, John A., Sr., to DBS, Inc. Imprinter having a removable cartridge containing a plurality of roller platens. 4,423,679, Cl. 101-269.000.

Maurer, Fritz; Priesnitz, Uwe; and Riebel, Hans-Jochem, to Bayer Aktiengesellschaft. Preparation of 1,1-dihalogeno-alkenes. 4,424,166, Cl. 260-464.000.

Maurice, Terrence J.: *See*—
Grealy, Jennifer M.; Maurice, Terrence J.; and Myers, Chester D., 4,424,151, Cl. 260-123.500.

May & Baker Limited: *See*—
Caton, Michael P. L.; and Stuttle, Keith A. J., 4,424,374, Cl. 424-308.000.

Mayne, Harry H.; and Quenneville, Raymond N., to Jacobs Mfg. Company, The. Engine retarder slave piston return mechanism. 4,423,712, Cl. 123-321.000.

Mazelsky, Bernard, to Ara, Inc. Crashworthy helicopter seat. 4,423,848, Cl. 244-122.00R.

Mazzocco, Thomas R., to Staar Surgical Company, Inc. Packaging system for intraocular lens structures. 4,423,809, Cl. 206-5.100.

McAllister, Dan R., to Westinghouse Electric Corp. Muzzle arc suppressor for electromagnetic projectile launcher. 4,423,662, Cl. 89-8.000.

McCarty, William H.; Guarino, John P.; and Nagy, Frank A., to Mobil Oil Corporation. Method for producing articles by deformation substrates having a radiation cured substrate. 4,424,100, Cl. 204-159.150.

McClay, Augustine C.: *See*—
North, William E.; and McClay, Augustine C., 4,424,001, Cl. 416-92.000.

McConchie, Garnet E.: *See*—
Hefner, Robert E., Jr.; and McConchie, Garnet E., 4,424,310, Cl. 526-277.000.

McConnell, James R. Alignment control system for lateral irrigators. 4,423,839, Cl. 239-1.000.

McCormick, J. Byron: *See*—
Bobbett, Ronald E.; McCormick, J. Byron; and Kerwin, William J., 4,424,491, Cl. 324-433.000.

McCullough, John E., to Arthur D. Little, Inc. Involute scroll-type positive displacement rotary fluid apparatus with orbiting guide means. 4,424,010, Cl. 417-420.000.

McDaniel, Max P.; and Short, James N., to Phillips Petroleum Company. Catalyst comprising a phosphate and with a bis-(cyclopentadienyl)chromium(II) compound. 4,424,139, Cl. 502-117.000.

McDaniel, Max P., to Phillips Petroleum Company. Polymerization with a silica base catalyst having titanium incorporated through use of peroxide. 4,424,320, Cl. 526-106.000.

McDermott, Arthur W.: *See*—
Hogenhout, Franciscus; McDermott, Arthur W.; and Rumney, Joseph L., 4,423,620, Cl. 72-430.000.

McDonnell Douglas Corporation: *See*—
Schimmel, Morry L., 4,423,682, Cl. 102-275.200.

McFarland, Keith E.: *See*—
Lloyd, William A.; McFarland, Keith E.; and Smith, Kenneth E., 4,424,522, Cl. 346-154.000.

McGuire, Michael E.; and Tatlock, Edwin, to Chloride Group Public Limited Company. Multicell electric storage batteries. 4,424,264, Cl. 429-179.000.

McGuire, Raymond R.; Cochoy, Robert E.; and Shackelford, Scott A., to United States of America, Air Force. Process for preparation of energetic plasticizers. 4,424,398, Cl. 568-589.000.

McInnes, Alister G.: *See*—
Kurobane, Itsuo; Vining, Leo C.; and McInnes, Alister G., 4,424,373, Cl. 549-393.000.

McIntosh, James, to Mack-Wayne Plastics Company. Stress fzilure resistant container cap. 4,423,821, Cl. 215-329.000.

McKenna, Joan J. Method for preservation of living organic tissue by freezing. 4,423,600, Cl. 62-62.000.

McLean, Howard J., to United Technologies Corporation. Augmentor residual fuel drain apparatus. 4,423,595, Cl. 60-261.000.

McMillan, John F. Separator and method for separation of oil, gas and water. 4,424,068, Cl. 55-38.000.

McNamara, Thomas V., to Eaton Corporation. Gear retainer. 4,423,643, Cl. 74-331.000.

McWhirter, Horace B., II: *See*—
Meigs, William; and McWhirter, Horace B., II, 4,423,578, Cl. 52-403.000.

Mead Corporation, The: *See*—
Spamer, William S., 4,423,818, Cl. 211-49.00D.
Suttles, James M., 4,423,816, Cl. 211-183.000.

Mears, Barry J.: *See*—
Badmin, John S.; and Mears, Barry J., 4,424,233, Cl. 424-288.000.

Medical Magnetics, Inc.: *See*—
Smiley, Harry; and Blechman, Abraham, 4,424,030, Cl. 433-18.000.

Mefford, Joe. Method and apparatus for positioning a safety valve sub for connection in a threaded tubular member. 4,423,774, Cl. 166-77.500.

Mehrens, Douglas W.; and Kuchar, James F. Pump and filter assembly for evaporative coolers. 4,424,007, Cl. 417-360.000.

Meier, Robert H.; and Farr, Evelyn, to Camp International, Inc. Patellar stabilizing orthosis. 4,423,720, Cl. 128-80.00C.

Meigs, William; and McWhirter, Horace B., II, to Disco Aluminum Products Co., Inc. Thermally broken frame with separation prevention. 4,423,578, Cl. 52-403.000.

Menges, William H. Corrugated hose coupling. 4,423,891, Cl. 285-305.000.

Mennicke, Winfried; and Goebel, Hermann, to Bayer Aktiengesellschaft. Metal complex dyestuffs, processes for their preparation and their use for dyeing nitrogen-containing materials. 4,424,152, Cl. 260-148.000.

Merck & Co., Inc.: *See*—
Belanger, Patrice C.; Williams, Haydn W. R.; and Rokach, Joshua, 4,424,355, Cl. 546-35.000.
Christensen, Burton G.; and Ratcliffe, Ronald W., 4,424,230, Cl. 424-274.000.
Wang, Ching C., 4,424,220, Cl. 424-250.000.

Merck Patent Gesellschaft Mit Beschrankter Haftung: *See*—
Bodart, Detlef E., 4,424,277, Cl. 436-110.000.

Merlin Gerin S.A.: *See*—
Bernard, Georges; Olive, Serge; and Scarponi, Francesco, 4,424,428, Cl. 200-147.00A.

Merrill, LaVaun S., Jr., to Marathon Oil Company. Method for retorting carbonaceous particles. 4,424,021, Cl. 432-14.000.

Merz, Johannes; v. d. Kammer, Gunter; and Rau, Ulrich, to L. & C. Steinmuller GmbH. Method of producing pulverized coal as fuel for pulverized-coal pilot burners. 4,423,689, Cl. 110-347.000.

Messick, Walker A.: *See*—
O'Brien, Lawrence B.; Winston, Walter F.; Abner, Edmund L.; Atkinson, Lowell G.; Roudebush, H. Richard; Buehler, William L.; Bergstresser, Jim K.; and Messick, Walker A., 4,424,011, Cl. 417-477.000.

Metal Box Limited: *See*—
Franek, Josef T.; Porucznik, Paul; Serby, Peter H.; and Tod, Christopher J. N., 4,423,823, Cl. 220-77.000.

Metallwerk Max Brose GmbH & Co.: *See*—
Hess, Hans-Peter; and Muhling, Gunter, 4,423,566, Cl. 49-352.000.

Meunier, Georges, to St. Gobain Vitrage. Device for heat exchange between solid particles and a gas current. 4,423,558, Cl. 34-57.00A.

Meyer, Nicolas; and Wollaert, Gilbert, to Societe Chimique des Charbonnages SA. Continuous process for the manufacture of quick-setting phenolic foams. 4,424,289, Cl. 521-103.000.

Meyer, Rolf-Volker; Kreuder, Hans-Joachim; and Hohlein, Peter, to Bayer Aktiengesellschaft. Reactive polymers containing carboxyl groups, a process for the production thereof, and the use thereof as binder components for powder lacquers. 4,424,313, Cl. 525-438.000.

Meyer, Rolf-Volker; Kreuder, Hans J.; and de Cleur, Eckhard, to Bayer Aktiengesellschaft. Bicyclic amidines. 4,424,353, Cl. 544-253.000.

Michaels, Alan S.: *See*—
Block, Jacob; and Michaels, Alan S., 4,424,302, Cl. 525-58.000.

Microbo, S.A.: *See*—
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Middlebrook, Terence C., to Phillips Petroleum Company. Articles from alkadiene-vinyl arene copolymers heat-bonded to vinyl chloride polymers. 4,424,259, Cl. 428-451.000.

Middleton, Kathryn A.: *See*—
Adams, Ronald W.; and Middleton, Kathryn A., 4,424,250, Cl. 428-198.000.

Miller, Gardner H., to Trustroke International, Inc. Golf training aid. 4,423,875, Cl. 273-186.00C.

Miller, Richard D. Concealed fastener, standing rib, metal roof parts. 4,423,581, Cl. 52-519.000.

Mimura, Takashi, to Fujitsu Limited. High electron mobility single heterojunction semiconductor devices. 4,424,525, Cl. 357-23.000.

Minamino, Hiromi; Kondo, Mitsuo; Otani, Yasuhisa; Miyashita, Akira; Okada, Kenzo; and Kuramoto, Takashi, to Kanebo Ltd.; and Maruzen Kasei Co., Ltd. Creamy or milky skin cosmetic compositions. 4,424,204, Cl. 424-63.000.

Minjolle, Louis; Lengronne, Bernard; Calvet, Joseph; and Chateigner, Serge, to Societe Anonyme dite: Ceraver. Method of manufacturing a sintered silicon carbide ceramic part. 4,424,179, Cl. 264-44.000.

Minnesota Mining & Manufacturing Company: *See*—
Filreis, Manuel; and Seim, William J., 4,423,918, Cl. 339-97.00P.
Franco, Simone; and Valsecchi, Alberto, 4,424,273, Cl. 430-529.000.
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Minolta Camera Kabushiki Kaisha: *See*—
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Minox G.m.b.H.: *See*—
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Mironov, Lev G.: *See*—
Rossoshinsky, Alexei A.; Balakin, Valentin I.; Babak, Alexandr K.; Lebedev, Vladimir K.; Mironov, Lev G.; Chelnokov, Gennady I.; and Vinogradov, Gennady V., 4,424,106, Cl. 204-256.000.

Mita Industrial Company Limited: *See*—
Kimura, Hiroshi; Hisajima, Masahiko; Shigemura, Yutaka; Yada, Isao; Irie, Yoichiro; and Morimoto, Kiyoshi, 4,423,948, Cl. 355-14.00D.
Sasaki, Hideyuki; Nakazawa, Toru; Kato, Yoshiaki; Fukuda, Hideo; Kamezaki, Yasushi; and Fushida, Akira, 4,424,269, Cl. 430-94.000.

Mitchell, Albert L.: *See*—
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Mitchell, Hal D.: *See*—
Kralik, Douglas R.; and Mitchell, Hal D., 4,423,524, Cl. 2-416.000.

Mitchell, Thomas O., to Mobil Oil Corporation. Processing of tar sands. 4,424,113, Cl. 208-11.0LE.

Mito, Yoshio: *See*—
Nakamura, Kazuharu; Mito, Yoshio; Okayasu, Akiyoshi; and Takeuchi, Kazuhiko, 4,424,019, Cl. 431-307.000.

Mitsubishi Denki Kabushiki Kaisha: *See*—
Ikegami, Takashi, 4,424,464, Cl. 310-68.00D.
Yamanaka, Takashi; Inagaki, Kouichi; Naya, Eizo; Demizu, Michinosuke; and Okumura, Mitsuhiro, 4,424,429, Cl. 200-264.000.

Mitsui Liquefied Gas Co., Ltd.: *See*—
Okigami, Noboru; Sekiguchi, Yoshitoshi; Hayasaka, Hiroshi; Koyama, Toshitsugu; Fujioka, Takeo; and Yoshimitsu, Takeshi, 4,424,017, Cl. 431-3.000.

Mitsui Petrochemical Industries, Ltd.: *See*—
Nakamura, Motofumi; Horimoto, Koji; and Yusawa, Motoyasu, 4,424,255, Cl. 428-283.000.

Mitsui, Tadashi; and Imaizumi, Hiraku, to TDK Electronics Co., Ltd. Ferrite core. 4,424,504, Cl. 336-83.000.

Miura, Ieaki, to Tokico Ltd. Shock absorber. 4,423,801, Cl. 188-322.140.

Miyamoto, Junichi, to Tokyo Shibaura Denki Kabushiki Kaisha. Bipolar prom. 4,424,578, Cl. 365-104.000.

Miyamura, Tamio: *See*—
Fukushima, Toshitaka; Koyama, Kazumi; Ueno, Kouji; Miyamura, Tamio; and Kawabata, Yuichi, 4,424,582, Cl. 365-189.000.

Miyashita, Akira: *See*—
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Miyata, Yukinori: *See*—
Sami, Hiroshi; Ueda, Tatehito; Ito, Osamu; Hobo, Nobuhito; Naitou, Takashi; Nakamura, Tetsuya; Kawai, Shizuo; and Miyata, Yukinori, 4,423,713, Cl. 123-357.000.

Miyawaki, Uichi. Blade for a saw and a method for manufacturing the same. 4,423,553, Cl. 30-355.000.

Mizuno, Shogo; Suzuki, Takao; Kawasaki, Sadanobu; and Takeda, Hideichiro, to Dai Nippon Insatsu Kabushiki Kaisha. Transfer sheet with resist portions. 4,424,091, Cl. 156-234.000.

Mobil Oil Corporatioe: *See*—
Audeh, Costandi A., 4,424,119, Cl. 208-251.00R.
Audeh, Costandi A., 4,424,120, Cl. 208-253.000.
Johnson, D. Emil; Krutchen, Charles M.; and Sharps, G. Vincent, Jr., 4,424,287, Cl. 521-74.000.
McCarty, William H.; Guarino, John P.; and Nagy, Frank A., 4,424,100, Cl. 204-159.150.
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Panicker, Narayana N.; Gentry, Larry L.; and Moss, Herbert H., 4,423,984, Cl. 405-195.000.
Rankel, Lillian A., 4,424,118, Cl. 208-211.000.

Molins Limited: *See*—
Applegate, Barry G.; and Starkey, Stanley V., 4,423,996, Cl. 414-391.000.

Molison, Robert E.: *See*—
Elsner, Bertram F.; Elsner, Frank, Jr.; and Molison, Robert E., 4,423,584, Cl. 53-415.000.

Mollmann, Henry C.: *See*—
Keeling, Ronald J.; Roe, Jin-Young K.; and Mollmann, Henry C., 4,424,261, Cl. 428-530.000.

Moniot, Jerome L.; Fox, Rita T.; Sprague, Peter W.; and Haslanger, Martin F., to E. R. Squibb & Sons, Inc. Prostacyclin intermediates. 4,424,376, Cl. 560-120.000.

Monjo-Rufi, Jesus. Shelf rack. 4,423,817, Cl. 211-187.000.

Monnier, Jean-Luc: *See*—
Jacot-Descombes, Jacques; and Monnier, Jean-Luc, 4,424,472, Cl. 318-568.000.

Monolithic Systems Corporation: *See*—
Fellinger, Michael W., 4,424,497, Cl. 331-1.00A.

Monsanto Company: *See*—
Bach, Hartwig C., 4,424,257, Cl. 428-370.000.
Bach, Hartwig C., 4,424,258, Cl. 428-370.000.
Hedrick, Ross M.; Woodbrey, James C.; Gabbert, James D.; and Erickson, Floyd B., 4,424,254, Cl. 428-215.000.

Monsees, Claude E.; and Simpson, William W., to Rexham Corporation. Package forming apparatus and method. 4,423,585, Cl. 53-451.000.

Mookherjee, Braja D.; Trenkle, Robert W.; Wolff, Robin K.; Boden, Richard M.; and Yoshida, Takao, to International Flavors & Fragrances Inc. Methyl substituted pinyl oxopentenes, organoleptic uses thereof and process for preparing same. 4,424,378, Cl. 568-374.000.

Moore, Brian E.; and Buis, Richard D., to Endress & Hauser, Inc. Enclosure for electrical components. 4,424,404, Cl. 174-52.00R.

Moore, George E.; and Muehter, Vincent A., to Bell Telephone Laboratories, Incorporated. Communication system parkhold conferencing. 4,424,418, Cl. 179-18.0BC.

Mordvinova, Maria V.: *See*—
Pakhomov, Gennady N.; Luste, Anita Y.; Kolesnik, Anatoly G.; Demishev, Vasily N.; Pashinina, Eva L.; Mordvinova, Maria V.; Morozova, Lilia V.; Boginskaya, Lidia M.; Voskresenskaya, Irina B.; Osadchuk, Sara Z.; and Kadnikova, Galina I., 4,424,203, Cl. 424-52.000.

Morel, Didier, to Rhone-Poulenc Industries. Unsaturated fatty alcohols and method of preparing them. 4,424,399, Cl. 568-840.000.

Mori, Shigehiro: *See*—
Shioiri, Takayuki; Aoyama, Toyohiko; and Mori, Shigehiro, 4,424,158, Cl. 260-239.0AA.

Mori, Yuichi: *See*—
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Morimoto, Kiyoshi: *See*—
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Morioka, Akitoshi: *See*—
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Morita, Yasuyuki; Yokooku, Katsuhiko; Shiraishi, Hideo; and Matsuura, Masahiko, to Toyo Kogyo Co., Ltd. Cooling system for liquid-cooled internal combustion engines. 4,423,705, Cl. 123-41.020.

Moritoki, Masakazu: *See*—
Kurihara, Keishiro; Nakayama, Tetsuya; and Moritoki, Masakazu, 4,423,785, Cl. 172-3.000.

Morizumi, Mitsuo; and Kawahata, Masahiro, to Nissan Motor Co., Ltd. Liquefied gas overcharge prevention device. 4,423,750, Cl. 137-413.000.

Morozova, Lilia V.: *See*—
Pakhomov, Gennady N.; Luste, Anita Y.; Kolesnik, Anatoly G.; Demishev, Vasily N.; Pashinina, Eva L.; Mordvinova, Maria V.; Morozova, Lilia V.; Boginskaya, Lidia M.; Voskresenskaya, Irina B.; Osadchuk, Sara Z.; and Kadnikova, Galina I., 4,424,203, Cl. 424-52.000.

Morris, Earl L.; and Hafner, V. Walter, to Acorn Engineering. Fabricated floor drain with combination anchoring and seepage control flange. 4,423,527, Cl. 4-288.000.

Morrison, Thomas R. Cyclic power monitor. 4,423,630, Cl. 73-379.000.

Moses, Edward L., Jr. Method of inhibiting differential wall sticking in the rotary drilling of hydrocarbon wells. 4,423,791, Cl. 175-65.000.

Moskal, Clifford J.: *See*—
Braunlin, Walter A.; Gorski, Alan; Jaehnig, Leo J.; Moskal, Clifford J.; Naylor, Joseph D.; Parimi, Krishnia; and Ward, John V., 4,424,108, Cl. 208-8.0LE.

Mosley, Thomas C., Jr. Dead-bolt-type locking means, and an assembly thereof. 4,423,895, Cl. 292-36.000.

Moss, Herbert H.: *See*—
Panicker, Narayana N.; Gestry, Larry L.; and Moss, Herbert H., 4,423,984, Cl. 405-195.000.

Motorola, Inc.: *See*—
Fennell, Robert D.; Bailey, David F.; and Ganucheau, Charles J., Jr., 4,424,514, Cl. 340-825.520.
Gay, Michael J., 4,424,462, Cl. 307-603.000.
Hulseweh, Terry S., 4,423,548, Cl. 29-591.000.
Neely, Eric D., 4,424,455, Cl. 307-243.000.

Mott, Jeoffrey: *See*—
Rao, Srinivas T.; and Mott, Jeoffrey, 4,424,527, Cl. 357-71.000.

Mouton, Pierre C., to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, "S.N.E.C.M.A.". System for measuring temperatures of a flowing fluid. 4,423,967, Cl. 374-138.000.

Moyer, Anthony M.; and Kelly, Robert H., to Gang-Nail Systems, Inc. Method and apparatus for producing a connector plate. 4,423,615, Cl. 72-326.000.

Mucaro, Salvatore A., to Ideal Toy Corporation. Toy vehicle game. 4,423,871, Cl. 273-86.00R.

Muehlhausen, Almon A., II, to Communications Technology Corporation. Cable connector. 4,423,916, Cl. 339-59.00M.

Muehter, Vincent A.: *See*—
Moore, George E.; and Muehter, Vincent A., 4,424,418, Cl. 179-18.08C.

Muhling, Gunter: *See*—
Hess, Hans-Peter; and Muhling, Gunter, 4,423,566, Cl. 49-352.000.

Muller, Johannes F. J. M.; and Van Dongen, Joannes A. M. Elongated clock. 4,423,965, Cl. 368-78.000.

Muller, Rudolf M. R., to Profil-Verbindungstechnik GmbH & Co. KG. Impact damper. 4,423,859, Cl. 267-119.000.

Muller, Siegfried; and Teichmann, Friedrich, to Triumph-Adler A.G. fur Buro- und Informationstechnik. Drive coupling for ribbon mechanism in typewriters and similar machines. 4,423,974, Cl. 400-242.000.

Muller, Walter, to Lingl Corporation. Process and apparatus for the formation of setting layers made up of brick blanks. 4,423,807, Cl. 198-425.000.

Mullersman, Ferdinand H., to General Electric Company. Controlled fast charger. 4,424,476, Cl. 320-36.000.

Mulligan, David J., to Angus Fire Armour Limited. Fire-fighting compositions. 4,424,133, Cl. 252-8.050.

Mullins, Albert A.; and Beall, Clifford H., to Baker International Corporation. Fluid pressure actuated well tool. 4,423,777, Cl. 166-120.000.

Munday, William A.: *See*—
Hart, Judy L.; and Munday, William A., 4,423,610, Cl. 70-18.000.

Munini, Dino, to Industrie Zanussi S.p.A. Wash tub of plastics material for clothes washing machines. 4,423,607, Cl. 68-23.200.

Murase, Hiroshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Gas-insulated bushing. 4,424,402, Cl. 174-16.0BH.

Murata, Akio: *See*—
Shimohiro, Yoshiyuki; Murata, Akio; and Nisioka, Chiyoko, 4,424,061, Cl. 8-493.000.

Murata Kikai Kabushiki Kaisha: *See*—
Inoue, Yoshihisa, 4,423,587, Cl. 57-58.860.

Murphy, Robert P. Floating knife assembly for a mest defatting machine with positive blade position. 4,423,671, Cl. 99-486.000.

Murray, James A.; and Nyman, David, to International Standard Electric Corporation. Adaptive equalizer. 4,424,498, Cl. 333-18.000.

Murray Machinery, Inc.: *See*—
Haller, Jack R.; and Demopoulos, Dino M., 4,423,758, Cl. 144-176.000.

Murrell, Lawrence L.; Grenoble, Dane C.; and Long, Robert B., to Exxon Research and Engineering Co. Separating basic asphaltenes using transition metal oxide acid catalysts. 4,424,114, Cl. 208-86.000.

Musil, J. Donald. Apparatus for minimizing magnetic cogging in an electrical machine. 4,424,463, Cl. 310-49.00R.

Mutata Kikai Kabushiki Kaisha: *See*—
Matsui, Isamu, 4,423,586, Cl. 57-22.000.

Muzak, Nicholas; and Robinson, Montague J., to Stelco Inc. Spacer for batch coil annealing. 4,423,857, Cl. 266-262.000.

Myers, Chester D.: *See*—
Grealy, Jennifer M.; Maurice, Terrence J.; and Myers, Chester D., 4,424,151, Cl. 260-123.500.

N.C. Securities Holding, Inc.: *See*—
Bernhardt, David L., 4,423,646, Cl. 76-108.00R.

Naan Mechanical Works: *See*—
Dinur, Eldad, 4,423,838, Cl. 239-1.000.

Nadkarni, Ravindra M.: *See*—
Santhanam, Chakra J.; and Nadkarni, Ravindra M., 4,424,126, Cl. 210-195.100.

Nagai, Takeshi; Yamamoto, Kazushi; and Kobayashi, Ikuo, to Matsushita Electric Industrial Co., Ltd. Thin film thermistor. 4,424,507, Cl. 338-22.00R.

Nagane, Hiromichi, to Canon Kabushiki Kaisha. Original reader. 4,424,534, Cl. 358-287.000.

Nagaoka, Shoji; Takiuchi, Hidefumi; Mori, Yuichi; and Kikuchi, Tetsuya, to Toray Industries, Incorporated. Antithrombogenic biomedical material. 4,424,311, Cl. 525-303.000.

Nagase, Yuichi: *See*—
Ojima, Juji; and Nagase, Yuichi, 4,423,535, Cl. 16-85.000.

Nagashima, Kazuo: *See*—
Tsuji, Naoki; and Nagashima, Kazuo, 4,424,212, Cl. 424-181.000.

Nagata, Takeo: *See*—
Matsumoto, Takao; Ichikawa, Yoshiyuki; and Nagata, Takeo, 4,424,274, Cl. 435-144.000.

Nagy, Frank A.: *See*—
McCarty, William H.; Guarino, John P.; and Nagy, Frank A., 4,424,100, Cl. 204-159.150.

Naitou, Takashi: *See*—
Sami, Hiroshi; Ueda, Tatehito; Ito, Osamu; Hobo, Nobuhito; Naitou, Takashi; Nakamura, Tetsuya; Kawai, Shizuo; and Miyata, Yukinori, 4,423,713, Cl. 123-357.000.

Nakagawa, Masao; and Nishida, Tatehiko, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Expanded shaped article comprising a heat resistant synthetic resin. 4,424,286, Cl. 521-58.000.

Nakajima, Yoshihiro: *See*—
Yagi, Akira; Nishimura, Haruo; Bandai, Shinji; Kajimaki, Masao; Nakajima, Yoshihiro; and Matsumoto, Noriyuki, 4,423,532, Cl. 15-182.000.

Nakamura, Hiroaki: *See*—
Enoki, Takashi; Nakamura, Hiroaki; and Nakashima, Fujio, 4,424,574, Cl. 364-900.000.

Nakamura, Kazuharu; Mito, Yoshio; Okayasu, Akiyoshi; and Takeuchi, Kazuhiko, to Toyotomi Kogyo Co., Ltd. Device for vertically moving the wick of an oil burner. 4,424,019, Cl. 431-307.000.

Nakamura, Motofumi; Horimoto, Koji; and Yusawa, Motoyasu, to Mitsui Petrochemical Industries, Ltd. Backing sheet for cushioned floor. 4,424,255, Cl. 428-283.000.

Nakamura, Munekazu: *See*—
Asaoka, Sachio; Shiroto, Yoshimi; Nakamura, Munekazu; and Oso, Takeo, 4,424,142, Cl. 502-84.000.

Nakamura, Shinichi; Huzita, Riuzo; Kamitani, Iwao; and Maeda, Tetsuma. Method for treating fabric to impart washfast and antibiosis thereto. 4,424,060, Cl. 8-115.500.

Nakamura, Shinya: *See*—
Hira, Yutaka; and Nakamura, Shinya, 4,423,971, Cl. 400-144.200.

Nakamura, Tetsuya: *See*—
Sami, Hiroshi; Ueda, Tatehito; Ito, Osamu; Hobo, Nobuhito; Naitou, Takashi; Nakamura, Tetsuya; Kawai, Shizuo; and Miyata, Yukinori, 4,423,713, Cl. 123-357.000.

Nakanishi, Toshiharu: *See*—
Ohigashi, Hiroji; Nakanishi, Toshiharu; and Suzuki, Miyo, 4,424,465, Cl. 310-335.000.

Nakao, Satoshi: *See*—
Taguchi, Yasuo; and Nakao, Satoshi, 4,424,461, Cl. 307-491.000.

Nakashima, Fujio: *See*—
Enoki, Takashi; Nakamura, Hiroaki; and Nakashima, Fujio, 4,424,574, Cl. 364-900.000.

Nakayama, Chiaki: *See*—
Koyama, Masao; Matuo, Syuitu; Nakayama, Chiaki; and Hoshina, Katsumi, 4,424,193, Cl. 422-248.000.

Nakayama, Tetsuya: *See*—
Kurihara, Keishiro; Nakayama, Tetsuya; and Moritoki, Masakazu, 4,423,785, Cl. 172-3.000.

Nakazawa, Kiwao; Suwa, Kyoichi; and Yoshida, Shoichiro, to Nippon Kogaku K.K. Positioning apparatus. 4,423,959, Cl. 356-400.000.

Nakazawa, Toru: *See*—
Sasaki, Hideyuki; Nakazawa, Toru; Kato, Yoshiaki; Fukuda, Hideo; Kamezaki, Yasushi; and Fushida, Akira, 4,424,269, Cl. 430-94.000.

Naoi, Akira, to Sharp Kabushiki Kaisha. Cassette loading assembly especially for use in video cassette tape recorders. 4,424,540, Cl. 360-71.000.

Narang, Rajendra K. Reversible track link assembly and track shoes therefor. 4,423,910, Cl. 305-54.000.

Narayan, Thirumurti: *See*—
Patton, John T., Jr.; Kan, Peter T.; and Narayan, Thirumurti, 4,424,288, Cl. 521-99.000.

Narda Microwave Corporation, The: *See*—
Aslan, Edward E., 4,424,483, Cl. 324-95.000.

Nashua Corporation: *See*—
Cormier, Raymond G.; Bridges, Richard A.; and Peterson, Jeffrey L., 4,423,949, Cl. 355-14.00R.

Nasretdin, Adil M.: *See*—
Almgren, Per H. I.; Fredriksson, Ove R.; and Nasretdin, Adil M., 4,424,430, Cl. 219-10.55F.

Nath, Prem; and Gattuso, David A., to Energy Conversion Devices, Inc. Glow discharge deposition apparatus including a non-horizontally disposed cathode. 4,423,701, Cl. 118-715.000.

National Starch and Chemical Corporation: *See*—
Leake, Craig H.; and Silano, Michael A., 4,424,291, Cl. 524-47.000.

Nativi, Larry A., to Loctite Corporation. Conformal coating systems. 4,424,252, Cl. 428-209.000.

Nattel, William, to GTE Sylvania Canada Limited. Electrical wiring box arrangement. 4,424,405, Cl. 174-53.000.

Navratil, Martin: *See*—
Udvardy, Otto G.; Titus, Patricia E.; and Navratil, Martin, 4,424,300, Cl. 525-501.000.

Naya, Eizo: *See*—
Yamanaka, Takashi; Inagaki, Kouichi; Naya, Eizo; Demizu, Michinosuke; and Okumura, Mitsuhiro, 4,424,429, Cl. 200-264.000.

Naylor, Joseph D.: *See*—
Braunlin, Walter A.; Gorski, Alan; Jaehnig, Leo J.; Moskal, Clifford J.; Naylor, Joseph D.; Parimi, Krishnia; and Ward, John V., 4,424,108, Cl. 208-8.0LE.

Neefe, Charles W. Spin casting. 4,424,175, Cl. 264-2.100.

Neel, Keenar A., to Cannon Mills Company. Method and apparatus for printing composite designs on fabric. 4,423,676, Cl. 101-211.000.

Neely, Eric D., to Motorola, Inc. Glitch eliminating data selector. 4,424,455, Cl. 307-243.000.

Nelson, Mark A., to Baker International Corporation. Destructible core structure and method for using same. 4,424,183, Cl. 264-221.000.

Nelson Research & Development Company: *See*—
Rajadhyaksha, Vithal J., 4,424,210, Cl. 424-180.000.

Nelson, Stephen J., to Upjohn Company, The. Process for making phosphorus derivatives of aminothiomethylcarbamates. 4,424,368, Cl. 549-220.000.

Nemcek, Donald S., Sr.; and Selman, John J., III, to Cole-Parmer Instrument Company. Accurate hand-held digital readout thermometer. 4,423,968, Cl. 374-170.000.

Neumann, Don B.; Norton, Lyle K.; and Olson, Eric V., to American Hoechst Corporation. System and method for producing artwork for printed circuit boards. 4,424,519, Cl. 346-108.000.

New Brunswick Scientific Co., Inc.: *See*—
Lorincz, Robert S.; Masucci, Carmine; and Bull, Daniel N., 4,424,559, Cl. 364-131.000.

Newgard, Peter M., to SRI International. Noninvasive blood pressure monitoring transducer. 4,423,738, Cl. 128-672.000.

Newman, Albert L.: *See*—
Daman, Louis F.; Newman, Albert L.; and Patricia, John, 4,423,912, Cl. 312-30.000.

Neyret, Guy; and Cadoux, Alain, to Sodex-Magister, Societe d'Exploitation des Brevets Neiman. Cylinder lock for vehicles. 4,423,611, Cl. 70-455.000.

Nguyen, Minh D.; and Lostak, Charles, to J-M Manufacturing Company, Inc. Apparatus for coating plastic pipe. 4,423,700, Cl. 118-404.000.

NHK Spring Co., Ltd.: *See*—
Ojima, Juji; and Nagase, Yuichi, 4,423,535, Cl. 16-85.000.

Nichols, Gordon E., deceased (by Nichols, Madeleine, administrator), to Winthrop-Atkins Co., Inc. Combination wall calendar and support. 4,423,562, Cl. 40-107.000.

Nichols, Lawrence J.; and MacMaster, George H., to Raytheon Company. Divider/combiner amplifier. 4,424,496, Cl. 330-286.000.

Nichols, Madeleine, administrator: *See*—
Nichols, Gordon E., deceased, 4,423,562, Cl. 40-107.000.

Nickos, Christopher J.: *See*—
Vigneri, Ronald J.; and Nickos, Christopher J., 4,423,780, Cl. 166-308.000.

Niederhuefner, Detlev: *See*—
Mamet, Manfred; Fischer, Dietrich; Tuemmler, Gerhard; and Niederhuefner, Detlev, 4,424,490, Cl. 324-424.000.

Nilberg, Hans, to Santa Fe International Corporation. Concrete lining of drilled shaft. 4,423,981, Cl. 405-133.000.

Nippert Company, The: *See*—
Nippert, Russell A., 4,423,617, Cl. 72-356.000.

Nippert, Russell A., to Nippert Company, The. Method of making a male resistance welding electrode. 4,423,617, Cl. 72-356.000.

Nippon Aerosil Co., Ltd.: *See*—
Ito, Tadao; and Hori, Hidetaka, 4,424,198, Cl. 423-342.000.

Nippon Electric Co., Ltd.: *See*—
Kawai, Masato, 4,424,581, Cl. 365-154.000.

Nippon Kogaku K.K.: *See*—
Furuya, Mikihito; and Daitoku, Koichi, 4,423,942, Cl. 354-266.000.
Nakazawa, Kiwao; Suwa, Kyoichi; and Yoshida, Shoichiro, 4,423,959, Cl. 356-400.000.
Ogino, Makoto; Fujiu, Takamitsu; Futami, Toshihiko; Kariya, Michio; and Ichimura, Takeo, 4,424,037, Cl. 433-173.000.
Takahashi, Fumio, 4,423,932, Cl. 351-207.000.

Nippon Unicar Company: *See*—
Senuma, Akitaka; and Aizawa, Takao, 4,424,181, Cl. 264-54.000.

Nippon Zeon Co., Ltd.: *See*—
Kitahara, Shizuo; Fujii, Toshihiro; and Sugi, Nagatoshi, 4,424,306, Cl. 525-131.000.

Nippondenso Co., Ltd.: *See*—
Sami, Hiroshi; Ueda, Tatehito; Ito, Osamu; Hobo, Nobuhito; Naitou, Takashi; Nakamura, Tetsuya; Kawai, Shizuo; and Miyata, Yukinori, 4,423,713, Cl. 123-357.000.

Nishida, Tatehiko: *See*—
Nakagawa, Masao; and Nishida, Tatehiko, 4,424,286, Cl. 521-58.000.

Nishimoto, Yoshiharu; and Yamazaki, Kengo, to Kureha Kagaku Kogyo Kabushiki Kaisha. Heat-shrinkable laminate film. 4,424,243, Cl. 428-36.000.

Nishimura, Haruo: *See*—
Yagi, Akira; Nishimura, Haruo; Bandai, Shinji; Kajimaki, Masao; Nakajima, Yoshihiro; and Matsumoto, Noriyuki, 4,423,532, Cl. 15-182.000.

Nishimura, Yutake; Oyama, Yoshishige; Kuroiwa, Hiroshi; and Osuga, Minoru, to Hitachi, Ltd. Method of controlling internal combustion engine. 4,424,568, Cl. 364-431.070.

Nishiwaki, Takashi: *See*—
Takahashi, Eiji; Shimazu, Shinichi; Wada, Yukio; Iwami, Ichiro; Nishiwaki, Takashi; Nishiyama, Toshikazu; and Ichida, Yutaka, 4,423,856, Cl. 266-106.000.

Nishiyama, Osamu. Device for conversion between flow and rotation. 4,424,002, Cl. 416-111.000.

Nishiyama, Toshikazu: *See*—
Takahashi, Eiji; Shimazu, Shinichi; Wada, Yukio; Iwami, Ichiro; Nishiwaki, Takashi; Nishiyama, Toshikazu; and Ichida, Yutaka, 4,423,856, Cl. 266-106.000.

Nishizaki, Genichi: *See*—
Ueno, Katumi; and Nishizaki, Genichi, 4,423,686, Cl. 108-20.000.

Nisioka, Chiyoko: *See*—
Shimohiro, Yoshiyuki; Murata, Akio; and Nisioka, Chiyoko, 4,424,061, Cl. 8-493.000.

Nissan Chemical Industries, Ltd.: *See*—
Tsubaki, Kazumi; Koto, Noriaki; and Abe, Toyohiko, 4,424,321, Cl. 526-128.000.

Nissan Motor Company, Ltd.: *See*—
Enoshima, Toshio; and Kuro, Jun-ichi, 4,424,477, Cl. 320-61.000.
Fukuma, Daizo; and Okamoto, Hisao, 4,424,085, Cl. 149-19.100.
Hayashi, Yoshimasa, 4,423,667, Cl. 92-261.000.
Hayashi, Yoshimasa, 4,423,714, Cl. 123-407.000.
Ideta, Yasufumi, 4,423,598, Cl. 60-547.300.
Kenichi, Yoshida, 4,423,621, Cl. 73-35.000.
Morizumi, Mitsuo; and Kawahata, Masahiro, 4,423,750, Cl. 137-413.000.
Sugimoto, Yoji; and Tomioka, Hirotaka, 4,423,900, Cl. 296-37.140.
Yaotani, Kouichi; and Tashoh, Masao, 4,423,902, Cl. 296-214.000.

Nojiri, Akio; Sawasaki, Takashi; and Koreeda, Toshio, to Furukawa Electric Co., Ltd., The. Crosslinkable polypropylene composition. 4,424,293, Cl. 524-101.000.

Nomori, Hiroyuki: *See*—
Kurihara, Seiji; Goto, Satoshi; Wada, Tsuneo; Kinoshita, Akira; Takei, Yoshiaki; Akashi, Naoko; and Nomori, Hiroyuki, 4,424,266, Cl. 430-59.000.

Noord-Nederlandsche Machinefabriek B.V.: *See*—
van Os, Cornelis J., 4,424,009, Cl. 417-394.000.

Norman, Warren N.: *See*—
Stover, Don A.; Upshaw, Clarence W.; and Norman, Warren N., 4,423,882, Cl. 280-33.99B.

North, William E.; and McClay, Augustine C., to Westinghouse Electric Corp. Tip structure for cooled turbine rotor blade. 4,424,001, Cl. 416-92.000.

Northern Telecom Limited: *See*—
Chaput, Guy J.; Sich, Edward M.; and Gumb, Beverley W. T., 4,424,419, Cl. 179-111.00E.

Norton Company: *See*—
Jones, Cecil M., 4,424,281, Cl. 501-89.000.

Norton, Lyle K.: *See*—
Neumann, Don B.; Norton, Lyle K.; and Olson, Eric V., 4,424,519, Cl. 346-108.000.

Norwich Eaton Pharmaceuticals, Inc.: *See*—
Pelosi, Stanford S., Jr.; Yu, Chia-Nien; White, Ronald E.; and Wright, George C., 4,424,367, Cl. 549-74.000.

Nota, Gabriel H. A.; and Toth, Anton, to Astral Societe de Peintures et Vernis; and ATO Chimie. Liquid coating composition for metal surfaces, and a process for coating them with such a coating composition. 4,424,239, Cl. 427-388.300.

Novak, Miroslav, to Statni vyzkumny ustav materialu. Protective film for metallic articles. 4,424,077, Cl. 106-290.000.

Nowicki, Ronald S., to Perkin-Elmer Corp., The. Method of depositing doped refractory metal silicides using DC magnetron/RF diode mode co-sputtering techniques. 4,424,101, Cl. 204-192.00C.

Nuc Med Inc.: *See*—
Crockford, David R.; and Rhodes, Buck A., 4,424,200, Cl. 424-1.100.

Nyman, David: *See*—
Murray, James A.; and Nyman, David, 4,424,498, Cl. 333-18.000.

Oak Industries Inc.: *See*—
den Toonder, Pieter; Fondse, Pieter J.; Seltenrijch, Johannes; de Jong, Cornelis A.; and de Kosingh, Tom, 4,424,532, Cl. 358-120.000.

Oberg, Kenneth H.: *See*—
Feldmahr, Walter; and Oberg, Kenneth H., 4,423,976, Cl. 402-80.00L.

O'Brien, Lawrence B.; Winston, Walter F.; Abner, Edmund L.; Atkinson, Lowell G.; Roudebush, H. Richard; Buehler, William L.; Bergstresser, Jim K.; and Messick, Walker A., to Triune Automated Painting Systems. Painting applicator with remote supply. 4,424,011, Cl. 417-477.000.

O'Brill, Robert A. Shielded fluorescent signs. 4,424,449, Cl. 250-461.100.

Occidental Chemical Corporation: *See*—
Simon-Bierenbaum, R.; Ertley, Ernest W.; Goetz, Frederick J.; and Tang, David Y., 4,424,396, Cl. 562-456.000.

Occidental Oil Shale, Inc.: *See*—
Ricketts, Thomas E., 4,423,908, Cl. 299-2.000.
Ridley, Richard D., 4,423,907, Cl. 299-2.000.
Studebaker, Irving G., 4,423,906, Cl. 299-2.000.

Occidental Research Corporation: *See*—
Choi, Henry W.; and Dines, Martin B., 4,424,121, Cl. 208-254.00R.
White, William R., 4,423,814, Cl. 209-3.300.

Oce-Nederland B.V.: *See*—
Ensing, Hendrik, 4,424,549, Cl. 361-230.000.

Oceanova: *See*—
Rougerie, Jacques, 4,423,695, Cl. 114-61.000.

O'Connor, James M., to Olin Corporation. Modified polyurethane liquid polymer compositions. 4,424,333, Cl. 528-75.000.

Oda, Yasuyuki: *See*—
Hashimoto, Yasuich; and Oda, Yasuyuki, 4,424,536, Cl. 360-51.000.

Oecki, Siegfried, to Bayer Aktiengesellschaft. Process for the preparation of 2,3-dichlorosulphonyl-acrylonitriles. 4,424,167, Cl. 260-465.00G.
OECOS Ltd.: *See*—
Davies, Alan R.; MacAuley, Ewen D. M.; Harris, George; Baker, Raymond; Howse, Philip E.; and Evans, David A., 4,423,564, Cl. 43-121.000.
Office National d'Etudes et de Recherches Aerospatiales (O.N.E.R.A.): *See*—
Laroche, Pierre A. R. M.; Hoarau, Roland J.; and Brault, Patrice G. M., 4,424,481, Cl. 324-72.000.
Officina Meccanica Sestese S.p.A.: *See*—
Tacchini, Franco, 4,423,672, Cl. 100-4.000.
Ogasawara, Susumu, to Makino Milling Machine Co., Ltd. Pallet changing device for a numerically controlled machine tool. 4,423,806, Cl. 198-339.000.
Ogasawara, Toshihiko: *See*—
Ara, Katsuyuki; Wakayama, Naoaki; Kobayashi, Kazuo; and Ogasawara, Toshihiko, 4,423,629, Cl. 73-295.000.
Ogihara, Masuo; Shinozaki, Nobuo; Ishikawa, Tadashi; and Seki, Yoichi, to Seiko Koki Kabushiki Kaisha. Alarm control system for alarm clock. 4,423,966, Cl. 368-263.000.
Ogino, Makoto; Fujiu, Takamitsu; Futami, Toshihiko; Kariya, Michio; and Ichimura, Takeo, to Nippon Kogaku K.K. Dental implant. 4,424,037, Cl. 433-173.000.
Oguni, Kensaku; Yasuda, Hiromu; and Kuroda, Sigeaki, to Hitachi, Ltd. Heat pump type refrigeration system. 4,423,603, Cl. 62-324.100.
Ohigashi, Hiroji; Nakanishi, Toshiharu; and Suzuki, Miyo, to Toray Industries, Inc. Piezoelectric vibration transducer. 4,424,465, Cl. 310-335.000.
Ohmi, Atsushi, to Aisin Seiki Kabushiki Kaisha. Brake booster. 4,423,666, Cl. 92-168.000.
Ohmura, Takao; Hirao, Yutaka; and Funakoshi, Satoshi, to Green Cross Corporation, The. Process for heat treatment of aqueous solution containing cold insoluble globulin to inactivate hepatitis virus. 4,424,206, Cl. 424-101.000.
Ohnishi, Akira: *See*—
Shiozaki, Ken; and Ohnishi, Akira, 4,424,143, Cl. 502-225.000.
Ojima, Juji; and Nagase, Yuichi, to NHK Spring Co., Ltd. Spring balancer. 4,423,535, Cl. 16-85.000.
Okada, Hitoshi: *See*—
Yamaguchi, Katsumi; and Okada, Hitoshi, 4,423,847, Cl. 242-200.000.
Okada, Kazuo, to Kabushiki Kaisha Universal. Pinball game. 4,423,872, Cl. 273-121.00A.
Okada, Kenzo: *See*—
Minamino, Hiromi; Kondo, Mitsuo; Otani, Yasuhisa; Miyashita, Akira; Okada, Kenzo; and Kuramoto, Takashi, 4,424,204, Cl. 424-63.000.
Okada, Yoshiyuki; and Sato, Yasuo, to Takeda Chemical Industries, Inc. Insecticidal pyrazolyl phosphates. 4,424,214, Cl. 424-200.000.
Okamoto, Hisao: *See*—
Fukuma, Daizo; and Okamoto, Hisao, 4,424,085, Cl. 149-19.100.
Okayasu, Akiyoshi: *See*—
Nakamura, Kazuharu; Mito, Yoshio; Okayasu, Akiyoshi; and Takeuchi, Kazuhiko, 4,424,019, Cl. 431-307.000.
Oki, Toshikazu; Yoshimoto, Akihiro; Matsuzawa, Yasue; Ishikura, Tomoyuki; Umezawa, Hamao; and Takeuchi, Tomio, to Sanraku-Ocean Co., Ltd. Anthracycline antibiotic compounds. 4,424,342, Cl. 536-6.400.
Okigami, Noboru; Sekiguchi, Yoshitoshi; Hayasaka, Hiroshi; Koyama, Toshitsugu; Fujioka, Takeo; and Yoshimitsu, Takeshi, to Hitachi Shipbuilding & Engineering Company Limited; and Mitsui Liquefied Gas Co., Ltd. System and method for burning liquefied gases. 4,424,017, Cl. 431-3.000.
Okumura, Mitsuhiro: *See*—
Yamanaka, Takashi; Inagaki, Kouichi; Naya, Eizo; Demizu, Michinosuke; and Okumura, Mitsuhiro, 4,424,429, Cl. 200-264.000.
Olah, George A., to PCUK Produits Chimiques Ugine Kuhlmann. Superacid catalyzed preparation of resorcinol from meta-isopropylephenol. 4,424,382, Cl. 568-783.000.
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Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; and Reith, Walter, to SKF Kugellagerfabriken GmbH. Rolling bearing for lengthwise movement. 4,423,911, Cl. 308-6.00C.
Olson, Eric V.: *See*—
Neumann, Don B.; Norton, Lyle K.; and Olson, Eric V., 4,424,519, Cl. 346-108.000.
Olympus Optical Company Ltd.: *See*—
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Omholt, Bruce D.; and Knapp, Robert L., to American Seating Company. Wall panel with removable acoustical insert. 4,423,573, Cl. 52-145.000.
Ondricek, George. Folding picture frame. 4,423,563, Cl. 40-533.000.
Onitsuka, Shigenori: *See*—
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Onodera, Hiroki, to Yamaha Motor Co., Ltd. Intake system of engines. 4,423,706, Cl. 123-52.00M.
Onodera, Toshihiro: *See*—
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Otte, Wolf-Dieter; Otte, Heinz; Schider, Siegfried; and Wiesner, Otto, to Schwarzkopf Development Corporation. Device for insertion and extraction of medullary nails. 4,423,721, Cl. 128-92.0EC.
Ottung, Kaj. Sampling valve for drawing samples from tanks containing easily contaminated liquids. 4,423,641, Cl. 73-863.860.
Ouellette, Charles W., to Raytheon Company. Parachute retainer latching mechanism. 4,423,660, Cl. 89-1.50R.
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Nishimura, Yutake; Oyama, Yoshishige; Kuroiwa, Hiroshi; and Osuga, Minoru, 4,424,568, Cl. 364-431.070.
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Palma, James D., to General Motors Corporation. Electromagnetic fuel injector with pivotable armature stop. 4,423,841, Cl. 239-585.000.

Palma, James D., to General Motors Corporation. Electromagnetic fuel injector with self aligned armature. 4,423,842, Cl. 239-585.000.

Palma, James D., to General Motors Corporation. Electromagnetic fuel injector with armature stop and adjustable armature spring. 4,423,843, Cl. 239-585.000.

Palmberg, Roger: *See*—
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Palmer, Jay W.; and Gaynor, John C., to United States Gypsum Company. Phosphohemihydrate process for purification of gypsum. 4,424,196, Cl. 423-166.000.

Palmer, Malcolm W. T.; and Pickford, Grahame A., to Horstman Gear Group Ltd. Electrical time switch. 4,424,454, Cl. 307-140.000.

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Panicker, Narayana N.; Gentry, Larry L.; and Moss, Herbert H., to Mobil Oil Corporation. Marine compliant riser system. 4,423,984, Cl. 405-195.000.

Panster, Peter; and Kleinschmit, Peter, to Degussa Aktiengesellschaft. Polymeric metal-amine complex compounds, processes for their preparation and use. 4,424,332, Cl. 528-30.000.

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Parkinson, Richard W. Treatment of herpes simplex. 4,424,232, Cl. 424-279.000.

Parlman, Robert M.; and Bresson, Clarence R., to Phillips Petroleum Company. Gold flotation with mercaptan and imidazoline. 4,424,122, Cl. 209-166.000.

Parlman, Robert M.; Burns, Lyle D.; and Bresson, Clarence R., to Phillips Petroleum Company. Ore flotation using fulvenes. 4,424,123, Cl. 209-166.000.

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Parsons, Robert L.; Valdespino, Joseph M.; Varraux, Alan R.; Holcomb, Allen K.; and Hobby, William M., III. Drainage control method and apparatus. 4,424,058, Cl. 604-118.000.

Paschalis, Stratos: *See*—
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Passaro, Robert E.; and Burough, Irvin G., to Andros Analyzers Incorporated. End tidal carbon dioxide gas analyzer. 4,423,739, Cl. 128-719.000.

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Payne, Thomas R.; and Chou, Robert V., to General Electric Company. Protective method and circuit arrangement for appliance incorporating sheathed heating element. 4,424,439, Cl. 219-501.000.

PCUK Produits Chimiques Ugine Kuhlmann: *See*—
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Pease, Charles C.; and Schaeffer, Eugene P., to Omark Industries, Inc. Boiler tube wearbar, stud and arc shield. 4,424,434, Cl. 219-99.000.

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Pelosi, Stanford S., Jr.; Yu, Chia-Nien; White, Ronald E.; and Wright, George C., to Norwich Eaton Pharmaceuticals, Inc. 5-(4-Aminophenyl)-2-thiophenecarboximidamide hydrochloride hemihydrate. 4,424,367, Cl. 549-74.000.

Peluso, Nicholas. Diving board and bracket assembly for a boat. 4,423,698, Cl. 114-343.000.

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Penzel, Erich; Eckert, Guenter; Heider, Lothar; Wuertele, Lothar; and Schackert, Werner, to BASF Aktiengesellschaft. Preparation of concentrated polyacrylate dispersions. 4,424,298, Cl. 524-747.000.

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Petrick, Stanley W.; and Garcia, Ramon D., to United States of America, National Aeronautics and Space Administration. Radiative cooler. 4,423,605, Cl. 62-467.00R.

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Parlman, Robert M.; Burns, Lyle D.; and Bresson, Clarence R., 4,424,123, Cl. 209-166.000.

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Pierre, Jacquilyn L. Insulating panel for thermal openings. 4,423,574, Cl. 52-202.000.

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Pike, John E.: *See*—
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Pitman, Lawrence C.; and Toomey, Charles L., to Raytheon Company. Method of fabricating cathode electrodes. 4,424,044, Cl. 445-35.000.

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Plante, Arcade J., to Bethlehem Steel Corporation. Articulated test probe mechanism with fluid bearing in test roll gap. 4,423,636, Cl. 73-622.000.

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Polymer Technology Corporation: *See*—
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Poole, Joseph, to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the. Optical instruments. 4,423,957, Cl. 356-153.000.
Poppe, Wassily, to Standard Oil Company, (Indiana). Injection moldable amide-imide polymers and copolymers containing titanates. 4,424,294, Cl. 524-127.000.
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Porteus, James O.: *See*—
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Potter, John T., to Iquad Company Incorporated. Printing apparatus. 4,423,970, Cl. 400-141.100.
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Pouderoux, Pierre; and Peyrelongue, Jean-Pierre, to Stein Industrie. Device for reducing thermal stresses on a heat exchanger. 4,423,770, Cl. 165-134.00R.
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Preston, Seaton T.; Greenwald, Frank L.; Eich, William D.; and Berger, Robert, to G and G Products, Inc. Film holding and agitating apparatus. 4,423,945, Cl. 354-313.000.
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Krivda, Leonid T.; Pshenishnjuk, Alexandr S.; Gromov, Viktor I.; and Schukin, Vladimir K., 4,423,614, Cl. 72-115.000.
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DeSantis, Raymond P.; and Puffer, Herbert J., Jr., 4,424,185, Cl. 264-334.000.
Puffer, Herbert J., Jr.: *See*—
DeSantis, Raymond P.; and Puffer, Herbert J., Jr., 4,424,185, Cl. 264-334.000.
Pupp, Herwig, to Tetra Pak International AB. Packing material for aseptic packages. 4,424,260, Cl. 428-461.000.
Purdue Research Foundation: *See*—
DeWitt, David P.; Hannemann, Robert E.; Robinson, Barrett F.; and Hanley, Edward J., 4,423,736, Cl. 128-633.000.
Puskadi, Frank, to Permacel. Printable release coating composition tapes. 4,424,244, Cl. 428-40.000.
Puthawala, Anwer: *See*—
Bege, Dietmar; Faust, Hans-Joachim; Puthawala, Anwer; and Stunkel, Helmut, 4,424,149, Cl. 252-629.000.
Quenneville, Raymond N.: *See*—
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Quick, Gary K.: *See*—
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QYL Inc.: *See*—
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Rahse, Wilfried; Kuhne, Norbert; and Wust, Willi, to Henkel Kommanditgesellschaft auf Aktien. Modified hydroxyalkyl celluloses and method of preparation. 4,424,347, Cl. 536-91.000.
Rahuel, Jean-Claude: *See*—
Lorig, Bernard; Rahuel, Jean-Claude; and Roux, Catherine, 4,424,572, Cl. 364-900.000.
Rajadhyaksha, Vithal J., to Nelson Research & Development Company. Vehicle composition containing 1-substituted azacycloalkan-2-ones. 4,424,210, Cl. 424-180.000.
Ramsey, James E., Jr., to Westinghouse Electric Corp. Induction meter having an improved electromagnetic voltage section. 4,424,484, Cl. 324-137.000.
Randolph, Donald A.: *See*—
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Rank Xerox Limited: *See*—
Sagami, Shizuo, 4,423,950, Cl. 355-15.000.
Rankel, Lillian A., to Mobil Oil Corporation. Method for removing contaminants from hydrocarbonaceous fluid. 4,424,118, Cl. 208-211.000.
Ransom, Jerry W.: *See*—
Sihon, Tanas M.; and Ransom, Jerry W., 4,423,707, Cl. 123-196.00R.
Rao, Srinivas T.; and Mott, Jeoffrey, to Optical Information Systems, Inc. Bonding pad metallization for semiconductor devices. 4,424,527, Cl. 357-71.000.
Rasmussen, David H.: *See*—
Lee, Richard H.; Cullen, Steven R.; Bailen, Eddie H.; Rasmussen, David H.; and Johnson, William C., 4,424,051, Cl. 493-37.000.
Ratcliffe, Ronald W.: *See*—
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Rau, Ulrich: *See*—
Merz, Johannes; v. d. Kammer, Gunter; and Rau, Ulrich, 4,423,689, Cl. 110-347.000.
Raven, Alfred J., III. Power stroking honing machine and control apparatus. 4,423,567, Cl. 51-31.00R.
Ravinovitch, Elvira B.; and Summers, James W., to B. F. Goodrich Company, The. Infrared reflecting vinyl polymer compositions. 4,424,292, Cl. 524-88.000.
Raviola, Florent, to Societe Chimique des Charbonnages. Ethylene-propylene copolymers. 4,424,330, Cl. 526-348.000.
Ray, George A., to Rolls-Royce Motors Limited. Latch mechanism. 4,423,905, Cl. 297-391.000.

Raychem Corporation: *See*—
Pieslak, George; and Wallace, Barnie A., Jr., 4,424,246, Cl. 428-63.000.
Raychem Limited: *See*—
Clabburn, Robin J. T., 4,424,411, Cl. 174-84.00R.
Raytheon Company: *See*—
Faxon, Merle W., 4,424,545, Cl. 361-91.000.
Nichols, Lawrence J.; and MacMaster, George H., 4,424,496, Cl. 330-286.000.
Ouellette, Charles W., 4,423,660, Cl. 89-1.50R.
Pitman, Lawrence C.; and Toomey, Charles L., 4,424,044, Cl. 445-35.000.
Sheldon, David W., 4,423,661, Cl. 89-1.819.
RCA Corporation: *See*—
Schroeder, John O., 4,424,493, Cl. 330-263.000.
Shahbender, Babah; Wendt, Frank S.; Gordon, Irwin; and Gries, Robert J., 4,424,469, Cl. 315-411.000.
Reed, Marion G., to Chevron Research Company. Stabilizing clay with hydroxy-aluminum and base. 4,424,076, Cl. 106-287.170.
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Reich, Edward: *See*—
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Reich, Karl; Tomaschek, Heinz; and Busch, Georg, to W. R. Grace & Co. Cyanoacrylate adhesive composition. 4,424,327, Cl. 526-297.000.
Reifschneider, Walter, to Dow Chemical Company, The. Substituted phenyl phosphorothioates and their use as pesticides. 4,424,217, Cl. 424-216.000.
Reith, Walter: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; and Reith, Walter, 4,423,911, Cl. 308-6.00C.
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Kiko, Frederick J., 4,424,499, Cl. 333-28.00R.
Rendall, John S., to Solv-ex Corporation. Method and apparatus for solvent extraction. 4,424,112, Cl. 208-11.0LE.
Repa Feinstanzwerk GmbH: *See*—
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Research Corporation: *See*—
Bucovaz, Edsel T.; and Whybrew, Walter D., 4,424,278, Cl. 436-501.000.
Reuland, Joachim, to Hauni-Werke Korber & Co. KG. Method and apparatus for detecting soft sections of tobacco fillers. 4,423,742, Cl. 131-84.00C.
Reuland, Joachim, to Hauni-Werke Korber & Co. KG. Apparatus for measuring the density of cigarette rods or the like. 4,424,443, Cl. 250-252.100.
Rexhum Corporation: *See*—
Carey, Norman W., 4,423,583, Cl. 53-373.000.
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Chisholm, Matthew F., 4,424,084, Cl. 148-417.000.
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Richard Hirschmann Radiotechnisches Werk: *See*—
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Keve, Tibor; Zsadon, Bela; Fekete, Gyorgy; Lorincz, Csaba; Galambos, Janos; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,223, Cl. 424-256.000.
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Gyulai, Zsuzsanna; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,224, Cl. 424-256.000.
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Richter, Olaf A. Method and apparatus for monitoring the length of a liquid column. 4,423,628, Cl. 73-290.00R.
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Richter, Werner, to Didier-Werke A.G. Refractory immersion spout. 4,423,833, Cl. 222-591.000.
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Ricketts, Thomas E., to Occidental Oil Shale, Inc. Formation of an in situ oil shale retort with control of mounding. 4,423,908, Cl. 299-2.000.
Ricoh Company, Ltd.: *See*—
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Ridley, Richard D., to Occidental Oil Shale, Inc. In situ recovery of shale oil. 4,423,907, Cl. 299-2.000.
Riebel, Hans-Jochem: *See*—
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Riggs, John L.: *See*—
Hoene, David J.; and Riggs, John L., 4,424,397, Cl. 568-473.000.
Rightmyre, Bruce M., to Petro-Fax. Roller transfer corona apparatus. 4,423,951, Cl. 355-3.0TR.
Riley, Eugene, to Banquet Foods Corporation. Adjustable spacer for contact plate freezer. 4,423,604, Cl. 62-341.000.
Rivinius, Theodore; and Helm, Emanuel. Auxiliary support for heavy equipment. 4,423,560, Cl. 37-116.000.
Robert, Andre, to Upjohn Company, The. Gastric cytoprotection with heterocyclic sulfonamides. 4,424,227, Cl. 424-270.000.
Robert Bosch GmbH: *See*—
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Robinson, Barrett F.: *See*—
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Robinson, Edward L., Jr.; and Westerfield, Lawerence D., to International Harvester Co. Agricultural furrow forming apparatus depth control. 4,423,788, Cl. 172-427.000.
Robinson, James W., to Flex-Kleen Corporation. Dust collecting filter cartridge and attachment structure for suspending same from baghouse tube sheet. 4,424,070, Cl. 55-378.000.
Robinson, Montague J.: *See*—
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Rockcor, Inc.: *See*—
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Best, David W., 4,424,460, Cl. 307-471.000.
Gergis, Isoris S.; and MacNeal, Bruce E., 4,424,577, Cl. 365-36.000.
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Roe, Jin-Young K.: *See*—
Keeling, Ronald J.; Roe, Jin-Young K.; and Mollmann, Henry C., 4,424,261, Cl. 428-530.000.
Roeraade, Johan. Column for liquid and gas chromatography. 4,424,127, Cl. 210-198.200.
Roese, John A.; and Turner, A. Franklin. Remotely triggered portable stereoscopic viewer system. 4,424,529, Cl. 358-88.000.
Roesner, Bruce B., to Burroughs Corporation. Mask programmable read-only memory stacked above a semiconductor substrate. 4,424,579, Cl. 365-105.000.
Roettgen, Leslie A., to Cummins Engine Company, Inc. Bypass valve and alarm assembly. 4,423,751, Cl. 137-557.000.
Rogers, Donald R.: *See*—
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Rohm and Haas Company: *See*—
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Ray, George A., 4,423,905, Cl. 297-391.000.
Roomi, Reyadh K. Surgical dressings. 4,423,731, Cl. 128-335.000.
Rorabeck, Cecil H.: *See*—
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Rosdy, Bela: *See*—
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Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Gyulai, Zsuzsanna; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,224, Cl. 424-256.000.
Rosen, Bruce I., to UOP Inc. Selective hydrogenation of fatty materials. 4,424,162, Cl. 260-409.000.
Rosen, Bruce I., to UOP Inc. Selective reduction of edible fats and oils. 4,424,163, Cl. 260-409.000.
Rosenhoover, William A.: *See*—
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Rosenstiel, Terry L.; and Debus, Allen A. G., to United States Gypsum Company. Process for preparing wastes for non-pollutant disposal. 4,424,148, Cl. 252-628.000.
Rossoshinsky, Alexei A.; Balakin, Valentin I.; Babak, Alexandr K.; Lebedev, Vladimir K.; Mironov, Lev G.; Chelnokov, Gennady I.; and Vinogradov, Gennady V., to Institut Elektrosvarki Imeni E.O. Patona. Electrolytic filter press cell for producing a mixture of hydrogen and oxygen. 4,424,106, Cl. 204-256.000.
Rothbart, Michael; Therien, Robert D.; Oliver, Thomas W.; Roller, Thomas W.; and Williams, Robert D., to Terminal Data Corporation. Document video digitizer. 4,424,535, Cl. 358-294.000.
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Rousset, Jacky; and Chavrier, Roger P., to Societe Coatex. Filtrate reducer additive for swelling clay grouts and cement-swelling clay grouts. 4,424,290, Cl. 524-5.000.
Roux, Catherine: *See*—
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Rowan, Henry A., to Economics Laboratory, Inc. Method for cleaning parts in a tote box. 4,424,082, Cl. 134-25.400.
Royset, Norvald, to Ulstein Trading Ltd. A/S. Device for locking chain, wire, cable, or the like to a stationary structure, particularly a boat deck. 4,423,697, Cl. 114-199.000.
Rubin, David, to Schwimmer, Adolf W.; Schwartz, Irwin Steven; and Rubin, David. Methods of manufacture of nitrile-containing glucuronic acid conjugates. 4,424,348, Cl. 536-17.900.
Ruggeri, Mariano V.: *See*—
Cron, Martin J.; Keil, John G.; Lin, Jeng S.; Ruggeri, Mariano V.; and Walker, Derek, 4,424,343, Cl. 536-13.800.
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Cornils, Boy; Frohning, Carl D.; Diekhaus, Gerhard; Wiebus, Ernst; and Bahrmann, Helmut, 4,424,383, Cl. 568-902.000.
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Rupinskas, Vytautas R., to Kendall Company, The. Sponge fabric. 4,424,249, Cl. 428-195.000.
Rush, Anne K. Convertible backpack/cape. 4,423,834, Cl. 224-151.000.
Rzeszewski, Theodore S., to Matsushita Electric Industrial Co., Ltd. Phase distortion detection circuitry for low cost automatic equalizer. 4,424,533, Cl. 358-167.000.
S.E.V. Alternateurs: *See*—
Kasperski, Jerzy R., 4,424,560, Cl. 363-144.000.
Sagae, Syoji: *See*—
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Sagami, Shizuo, to Rank Xerox Limited. Cleaning device for an electrophotographic reproducing machine. 4,423,950, Cl. 355-15.000.
Sage, Warnie L.: *See*—
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Saint Marcoux, Roland, to L.C.C.-C.I.C.E. Compagnie Europeene de Composants Electroniques. Condenser block and voltage multiplier comprising such a condenser block. 4,424,552, Cl. 361-306.000.
Sakakibara, Shinsuke: *See*—
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Sakito, Yoji, to Sumitomo Chemical Company, Limited. Synthesis of 6-hydroxychromsn-2-methanol derivatives. 4,424,389, Cl. 549-407.000.
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Salenz, Dieter, to Maschinenfabrik J. Dieffenbacher GmbH & Co. Feed and discharge apparatus for a laminate press. 4,424,092, Cl. 156-391.000.
Salice, Luciano, to Deutsche Salice GmbH. Hinge bracket-mounting plate assembly having a slidable locking bolt. 4,423,537, Cl. 16-258.000.
Sami, Hiroshi; Ueda, Tatehito; Ito, Osamu; Hobo, Nobuhito; Naitou, Takashi; Nakamura, Teisuya; Kawai, Shizuo; and Miyata, Yukinori, to Nippondenso Co., Ltd.; and Toyota Jidosha Kogyo Kabushiki Kaisha. Electric control apparatus for a fuel injection pump. 4,423,713, Cl. 123-357.000.
Samson, Marc: *See*—
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Sanraku-Ocean Co., Ltd.: *See*—
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Santen Pharmaceutical Co., Ltd.: *See*—
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Santhanam, Chakra J.; and Nadkarni, Ravindra M., to Arthur D. Little, Inc. Apparatus for removing heavy metals from aqueous liquids. 4,424,126, Cl. 210-195.100.
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Sara, Ramond V., to Union Carbide Corporation. Calcium intercalated boronated carbon fiber. 4,424,145, Cl. 252-509.000.
Sarin, Vinod K.; and Buljan, Sergej-Tomislav, to GTE Laboratories Incorporated. Alumina coated composite silicon aluminum oxynitride cutting tools. 4,424,066, Cl. 51-295.000.
Sarnoff, Norton: *See*—
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Sasaki, Akio: *See*—
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Sasaki, Hideyuki; Nakazawa, Toru; Kato, Yoshiaki; Fukuda, Hideo; Kamezaki, Yasushi; and Fushida, Akira, to Mita Industrial Co., Ltd. Electrophotographic CdS or CdSSe with ozone deterioration inhibitor. 4,424,269, Cl. 430-94.000.
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Sato, Masaaki, to Olympus Optical Company Limited. Cassette receptacle device. 4,423,812, Cl. 206-387.000.
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Satoh, Takashi; and Shimada, Isamu, to Fujitsu Limited. Method for detecting the position of a symmetrical article. 4,424,588, Cl. 382-48.000.
Sawasaki, Takashi: *See*—
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Saylor, Millard P. Wire connection. 4,423,538, Cl. 24-27.000.
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Schausberger, Helmut: *See*—
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Schawel, Pamela G. Nursing bra with nursing indicator. 4,423,734, Cl. 128-460.000.
Schefers, Corby J.; and Barber, Louis D. Drilling rig equipped with pairs of block and tackle systems. 4,423,994, Cl. 414-22.000.
Scheingold, William S.; and Sheesley, Wilmer L., to AMP Incorporated. Electrical connector having movable contact units. 4,423,917, Cl. 339-64.00M.
Schepers, Herman A. J., to Stamicarbon B.V. Polymer composition comprising ClPe, S/An, PVC, and rubber. 4,424,309, Cl. 525-211.000.
Schertz, Burtron D.: *See*—
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Scheurenbrand, Dieter; and Stotz, Manfred, to Daimler-Benz Aktiengesellschaft. Device for venting fuel tanks. 4,423,746, Cl. 137-43.000.
Schider, Siegfried: *See*—
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Schilling, Walter: *See*—
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Schimmel, Morry L., to McDonnell Douglas Corporation. One-way explosive transfer assembly. 4,423,682, Cl. 102-275.200.
Schindler, Hans-Dieter, deceased: *See*—
Schneider, Kurt; Kummer, Rudolf; Schwirten, Kurt; Schindler, Hans-Dieter, deceased; Schindler, Maria E., heir-at-law; Lang,

Ute, heir-at-law; and Schindler, Rainer, heir-at-law, 4,424,394, Cl. 560-105.000.
Schindler, Maria E., heir-at-law: *See*—
Schneider, Kurt; Kummer, Rudolf; Schwirten, Kurt; Schindler, Hans-Dieter, deceased; Schindler, Maria E., heir-at-law; Lang, Ute, heir-at-law; and Schindler, Rainer, heir-at-law, 4,424,394, Cl. 560-105.000.
Schindler, Rainer, heir-at-law: *See*—
Schneider, Kurt; Kummer, Rudolf; Schwirten, Kurt; Schindler, Hans-Dieter, deceased; Schindler, Maria E., heir-at-law; Lang, Ute, heir-at-law; and Schindler, Rainer, heir-at-law, 4,424,394, Cl. 560-105.000.
Schiweck, Hubert; and Witte, Gunter, to Suedeutsche Zucker-Aktiengesellschaft. Method for improving the carbonation procedure in a sugar plant. 4,424,078, Cl. 127-50.000.
Schleimann-Jensen, C. Arne, to TII Industries, Inc. Equipment for manufacturing gas-filled discharge tubes for use as transient protection. 4,424,026, Cl. 432-125.000.
Schmidt, Friedrich. Water turbine. 4,424,451, Cl. 290-54.000.
Schmidt, Gunther; Eberlein, Wolfgang; Engel, Wolfhard; Trummlitz, Gunter; Hammer, Rudolf; and Del Soldato, Piero, to Dr. Karl Thomae GmbH. Thienobenzodiazepinoses, pharmaceutical compositions thereof and method of use thereof. 4,424,225, Cl. 424-256.000.
Schmidt, Gunther: *See*—
Eberlein, Wolfgang; Trummlitz, Gunter; Schmidt, Gunther; Engel, Wolfhard; Hammer, Rudolf; and Del Soldato, Piero, 4,424,226, Cl. 424-263.000.
Engel, Wolfhard; Schmidt, Gunther; Trummlitz, Gunther; Eberlein, Wolfgang; Hammer, Rudolf; and Soldato, Piero D., 4,424,222, Cl. 424-250.000.
Schmidt, Hans-Georg, to Dynamit Nobel AG. Substituted pyran-2-ones. 4,424,369, Cl. 549-273.000.
Schmidt, Lothar: *See*—
Gebel, Rudolf; and Schmidt, Lothar, 4,424,427, Cl. 200-144.00B.
Schmidt, Werner, to Dynamit Nobel AG. Impregnating compositions for cellulose containing materials. 4,424,075, Cl. 106-287.120.
Schmitt, Eugene W., to Sloan Valve Company. Angle cock improvements. 4,423,749, Cl. 137-315.000.
Schmitt, Hermann: *See*—
Elter, Claus; Handel, Hubert; Heiland, Hans-Juergen; Schmitt, Hermann; and Schoening, Josef, 4,424,531, Cl. 358-100.000.
Schmitt, Walter, to Dr. Johannes Heidenhain GmbH. Test apparatus for digital photoelectric length or angle measuring instrument. 4,423,958, Cl. 356-375.000.
Schneider, Kurt; Kummer, Rudolf; Schwirten, Kurt; Schindler, Hans-Dieter, deceased; Schindler, Maria E., heir-at-law; Lang, Ute, heir-at-law; and Schindler, Rainer, heir-at-law, to BASF Aktiengesellschaft. Manufacture of arylacetic acids and their esters. 4,424,394, Cl. 560-105.000.
Schoening, Josef: *See*—
Elter, Claus; Handel, Hubert; Heiland, Hans-Juergen; Schmitt, Hermann; and Schoening, Josef, 4,424,531, Cl. 358-100.000.
Scholz, John A.: *See*—
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Scholze, Hans: *See*—
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Schopp, Helmut: *See*—
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Schroeder, John O., to RCA Corporation. Cross-coupled complementary power amplifier. 4,424,493, Cl. 330-263.000.
Schubert, Bernhard A., to Leuchtturm Albenverlag Paul Koch KG. Apparatus for production of album leaves. 4,424,093, Cl. 156-497.000.
Schukin, Vladimir K.: *See*—
Krivda, Leonid T.; Pshenishnjuk, Alexandr S.; Gromov, Viktor I.; and Schukin, Vladimir K., 4,423,614, Cl. 72-115.000.
Schulz, Donald N.: *See*—
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Schwaab, Konstantin, to Union Special GmbH. Material sensing means for sewing machines. 4,423,691, Cl. 112-272.000.
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Schwarzkopf Development Corporation: *See*—
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Schweitzer, Edmund O., Jr. Fault indicator having increased sensitivity to fault currents. 4,424,512, Cl. 340-664.000.
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Rubin, David, 4,424,348, Cl. 536-17.900.
Schwing, Gregory W., to Du Pont de Nemours, E. I., and Company. Benezenesulfonylisocyanates. 4,424,377, Cl. 564-91.000.
Schwirten, Kurt: *See*—
Schneider, Kurt; Kummer, Rudolf; Schwirten, Kurt; Schindler, Hans-Dieter, deceased; Schindler, Maria E., heir-at-law; Lang, Ute, heir-at-law; and Schindler, Rainer, heir-at-law, 4,424,394, Cl. 560-105.000.
Scott, William B.; Dickinson, Daniel C.; and Arnesson, Joel C. E., to W. A. Whitney Corp. Punch press with automatic tool changer. 4,423,546, Cl. 29-568.000.
SDS Biotech Corporation: *See*—
Magee, Thomas A.; Battershell, Robert D.; Limpel, Lawrence E.; Ho, Andrew W.; Friedman, Arthur W.; Corkins, H. Glenn; Brand, William W.; Buchman, Russell; Storace, Louis; and Osgood, Edmond R., 4,424,213, Cl. 424-184.000.
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Seeney, Charles E.; Kraemer, John F.; and Ingebrigtsen, Janis, to International Minerals & Chemical Corp. Binder for preparing improved cores and molds. 4,423,764, Cl. 164-528.000.
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Seki, Yoichi: *See*—
Ogihara, Masuo; Shinozaki, Nobuo; Ishikawa, Tadashi; and Seki, Yoichi, 4,423,966, Cl. 368-263.000.
Sekiguchi, Yoshitoshi: *See*—
Okigami, Noboru; Sekiguchi, Yoshitoshi; Hayasaka, Hiroshi; Koyama, Toshitsugu; Fujioka, Takeo; and Yoshimitsu, Takeshi, 4,424,017, Cl. 431-3.000.
Selander, Karl W.; and Smay, John J. Quick change shoe assembly for straight line sander. 4,423,571, Cl. 51-170.0TL.
Selman, John J., III: *See*—
Nemcek, Donald S., Sr.; and Selman, John J., III, 4,423,968, Cl. 374-170.000.
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den Toonder, Pieter; Fondse, Pieter J.; Seltenrijch, Johannes; de Jong, Cornelis A.; and de Koningh, Tom, 4,424,532, Cl. 358-120.000.
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Senicourt, Jacques-Marie; and Tebec, Jean-Louis, to Societe Nationale elf Aquataine. System of analysis by visual display of the vibratory movements of a rotary machine. 4,423,635, Cl. 73-593.000.
Senneville, Bertrand. Pad for setting concrete. 4,423,694, Cl. 112-405.000.
Senuma, Akitaka; and Aizawa, Takao, to Nippon Unicar Company. Process and composition for producing open-cell cross linked polyolefin foam. 4,424,181, Cl. 264-54.000.
Serby, Peter H.: *See*—
Franek, Josef T.; Porucznik, Paul; Serby, Peter H.; and Tod, Christopher J. N., 4,423,823, Cl. 220-77.000.
Serra, Henry, to Hermann Associates, Inc. Safe deposit box anchoring system. 4,423,687, Cl. 109-50.000.
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SGF Suddeutsche Gelenkscheibenfabrik, GmbH & Co. KG: *See*—
Ziegler, Gunther, 4,424,046, Cl. 464-74.000.
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McGuire, Raymond R.; Cochoy, Robert E.; and Shackelford, Scott A., 4,424,398, Cl. 568-589.000.
Shahbender, Babah; Wendt, Frank S.; Gordon, Irwin; and Gries, Robert J., to RCA Corporation. Television receiver ferroresonant high voltage power supply using temperature stable core material. 4,424,469, Cl. 315-411.000.
Shannon, Mark L., to Conoco Inc. Preparation of modified aromatic-moiety-containing polymers. 4,424,308, Cl. 525-196.000.
Shapiro, Jerrold M. Fundus camera accessory for analysis of the ocular fundus contour. 4,423,931, Cl. 351-206.000.
Sharp Kabushiki Kaisha: *See*—
Naoi, Akira, 4,424,540, Cl. 360-71.000.
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Sheesley, Wilmer L.: *See*—
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Shell Internationale Research Maatschappij B.V.: *See*—
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Shimano, Keizo, to Shimano Industrial Company Limited. Front derailleur for a bicycle having horizontally positioned linkage members. 4,424,048, Cl. 474-82.000.
Shimazu, Shinichi: *See*—
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Shimohiro, Yoshiyuki; Murata, Akio; and Nisioka, Chiyoko, to Dainippon Pharmaceutical Co., Ltd. Color fastness of dyed cotton textiles to chlorinated water and process for improving the color fastness of dyed cotton textiles to chlorinated water. 4,424,061, Cl. 8-493.000.
Shinaver, Lawrence P., to Applied Diesel Engineering, Inc. Filter device for diesel engines. 4,424,128, Cl. 210-238.000.
Shinozaki, Nobuo: *See*—
Ogihara, Masuo; Shinozaki, Nobuo; Ishikawa, Tadashi; and Seki, Yoichi, 4,423,966, Cl. 368-263.000.
Shioiri, Takayuki; Aoyama, Toyohiko; and Mori, Shigehiro, to Chisso Corporation. Process for preparing trialkylsilyldiazomethanes. 4,424,158, Cl. 260-239.0AA.
Shionogi & Co., Ltd.: *See*—
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Simpson Strong-Tie Company, Inc.: *See*—
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Slater, Thomas S.; and Bowden, Wade R., Jr., to Slater Electric Inc. Cable entry port means for electrical outlet box. 4,424,406, Cl. 174-65.00R.
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Smith, Gerald B., to Lucas Industries Limited. Electromagnetic transducer. 4,424,550, Cl. 361-236.000.
Smith, Harry D., Jr.; and Arnold, Dan M., to Halliburton Company. Method for simultaneous measurement of borehole and formation neutron lifetimes. 4,424,444, Cl. 250-270.000.
Smith, John S.; and Rogers, Donald R. Flange protector. 4,423,753, Cl. 138-89.000.
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Smith RPM Corporation: *See*—
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Societe Anonyme dite: Ceraver: *See*—
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Societe CEM Compagnie ElectroMecanique et Cie: *See*—
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Societe Chimique des Charbonnages—CdF Chimie: *See*—
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Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, "S.N.E.C.M.A.": *See*—
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Societe Nationale elf Aquataine: *See*—
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Sodex-Magister, Societe d'Exploitation des Brevets Neiman: *See*—
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Soloway, Mahlon R. Ultrasonic testing instrument and method. 4,423,637, Cl. 73-642.000.
Solv-ex Corporation: *See*—
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Solvay & Cie: *See*—
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Sorin Biomedica S.p.A.: *See*—
Vallana, Franco; and Bona, Gioachino, 4,423,525, Cl. 3-1.500.
Sours, William A.; and Sullivan, James F., to Triple/S Dynamics, Inc. Apparatus for shredding materials. 4,423,844, Cl. 241-35.000.
Southern Gas Association: *See*—
Edlund, Carl E., 4,424,571, Cl. 364-806.000.
Southwire Company: *See*—
Uppaluri, Bapa R., 4,423,612, Cl. 72-35.000.
Spake, Ned B.: *See*—
Ashworth, Robert A.; Padilla, Antonio A.; Rodriguez, Larry A.; Spake, Ned B.; and Sage, Warnie L., 4,423,702, Cl. 122-5.000.
Spamer, William S., to Mead Corporation, The. Article dispenser. 4,423,818, Cl. 211-49.00D.
Sperry Corporation: *See*—
Viola, Raymond D.; and Hanley, Gerard L., 4,424,500, Cl. 333-128.000.
Spielmann, Norbert, to Fag Kugelfischer Georg Schafer & Co. Hydraulic brake assembly with pneumatic power assist. 4,423,597, Cl. 60-547.100.
Spielvogel, Alfonse. Gravity held ashtray apparatus. 4,423,743, Cl. 131-231.000.
Spongr, Jerry J.: *See*—
Joffe, Boris B.; Tiebor, John E.; Spongr, Jerry J.; and Sawyer, Byron E., 4,424,445, Cl. 250-308.000.
Spor, Herman. Firewood carrier. 4,423,898, Cl. 294-9.000.
Sprague, Peter W.: *See*—
Moniot, Jerome L.; Fox, Rita T.; Sprague, Peter W.; and Haslanger, Martin F., 4,424,376, Cl. 560-120.000.
Sprecker, Mark A.; Klemarczyk, Philip T.; and Belko, Robert P., to International Flavors & Fragrances Inc. Cyclohexenyl-alpha-alkyl acrolein derivatives. 4,424,379, Cl. 568-446.000.
SRI International: *See*—
Newgard, Peter M., 4,423,738, Cl. 128-672.000.
Srostlik, Peter: *See*—
Botzem, Werner; Knappe, Ortwin; and Srostlik, Peter, 4,423,802, Cl. 188-377.000.
Staar Surgical Company, Inc.: *See*—
Mazzocco, Thomas R., 4,423,809, Cl. 206-5.100.
Stahl, Edward L.: *See*—
Kreeger, Elsmer W.; and Stahl, Edward L., 4,423,813, Cl. 206-506.000.
Stainless Icetainer Company: *See*—
Lents, Charles M.; and Swanson, Craig A., 4,423,830, Cl. 222-146.00C.
Stal-Laval Apparat AB: *See*—
Ostlund, Artur, 4,423,858, Cl. 266-270.000.
Stamicarbon B.V.: *See*—
Schepers, Herman A. J., 4,424,309, Cl. 525-211.000.
Standard Oil Company, The: *See*—
Alford, Harvey E.; and Hardman, Harley F., 4,424,135, Cl. 252-8.55D.
Bostic, James N., III; Carter, Robert D.; Agarwal, Ram G.; and Crowell, Ronald F., 4,423,625, Cl. 73-155.000.
Grasselli, Robert K.; Suresh, Dev D.; and Friedrich, Maria S., 4,424,141, Cl. 502-205.000.
Thomas, David C., 4,423,781, Cl. 166-312.000.
Standard Oil Company, (Indiana): *See*—
Poppe, Wassily, 4,424,294, Cl. 524-127.000.
Serres, Carl; and Schaffhausen, John G., 4,424,317, Cl. 525-539.000.
Zaremba, Hubart B., 4,423,982, Cl. 405-195.000.
Stang, Peter L.: *See*—
Van Ornum, Joel V.; and Stang, Peter L., 4,424,295, Cl. 524-526.000.
Stanley, Philip E.; Brown, Richard P.; and Peters, Arthur, to Honeywell Information Systems Inc. Odd/even bank structure for a cache memory. 4,424,561, Cl. 364-200.000.
Stanmar Technology: *See*—
Antelman, Stanley I.; and Ladue, Charles, 4,424,438, Cl. 219-491.000.
Starck, James U.: *See*—
Maijer, Rolf; and Starck, James U., 4,424,029, Cl. 433-3.000.
Starkey, Stanley V.: *See*—
Applegate, Barry G.; and Starkey, Stanley V., 4,423,996, Cl. 414-391.000.
Starkville Tool and Die Company: *See*—
Kelly, James C.; and Garnett, Fredrick W., 4,423,692, Cl. 112-274.000.
Statni vyzkumny ustav materialu: *See*—
Novak, Miroslav, 4,424,077, Cl. 106-290.000.
Stauffer Chemical Company: *See*—
DiSalvo, Anthony L.; and Yu, Arthur J., 4,424,316, Cl. 525-528.000.
Stefan, Zgorski, to Zumbach Electronic AG. Process for the measurement of the specific capacity of a cable and a device for carrying out the process. 4,424,480, Cl. 324-60.00C.
Steigerwald, Robert L., to General Electric Company. Full bridge PWM inverter with distributed device switching. 4,424,557, Cl. 363-98.000.
Stein Industrie: *See*—
Pouderoux, Pierre; and Peyrelongue, Jean-Pierre, 4,423,770, Cl. 165-134.00R.
Steinberg, Richard W. Harrow. 4,423,787, Cl. 172-142.000.
Steiner, Roy L., to Sevenson Company. Feed mixing apparatus. 4,423,961, Cl. 366-183.000.
Steinhauer, Ernst: *See*—
Arbter, Erhard; and Steinhauer, Ernst, 4,424,515, Cl. 343-715.000.
Steitz, William R.; and Carle, Richard C., to Toledo Engineering Co., Inc. Molten mass temperature conditioner. 4,424,071, Cl. 65-337.000.
Stelco Inc.: *See*—
Muzak, Nicholas; and Robinson, Montague J., 4,423,857, Cl. 266-262.000.
Stern, Richard A.; and Babbitt, Richard W., to United States of America, Army. Integrated dielectric waveguide radar front end device. 4,424,517, Cl. 343-771.000.
Stern, Theodore J.; and Loreto, Wilfredo P., to AIT Industries, Inc. Automatic lens edger. 4,423,569, Cl. 51-101.0LG.
Stevenson, Robert A.; and Dey, Albert W., to U.S. Capacitor Corporation. Highly-reliable feed through/filter capacitor and method for making same. 4,424,551, Cl. 361-302.000.
Stewart, Charles: *See*—
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Stille, John K., to Polymer Sciences Corporation. Preparation of amino acids in high optical yield via catalytic hydrogenation. 4,424,312, Cl. 525-274.000.
Stolarczyk, Gregory. Apparatus for repair of worn clock frame bearing bores. 4,423,542, Cl. 29-231.000.
Stolba, Edvard. Gymnastics/exercising equipment. 4,423,866, Cl. 272-125.000.
Stolpin, Roger M. Parabolic collector. 4,423,926, Cl. 350-292.000.
Stone, Corbett W.: *See*—
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Storni, Angelo: *See*—
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Stotz, Manfred: *See*—
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Stout, Gregg W., to Baker International Corporation. Single acting subterranean well valve assembly with conduit fluid stripping means. 4,423,773, Cl. 166-51.000.
Stover, Don A.; Upshaw, Clarence W.; and Norman, Warren N., to UNR Industries, Inc. Shopping cart with baby seat. 4,423,882, Cl. 280-33.99B.
Strammello, Peter, Jr.: *See*—
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Streenan, Thomas: *See—*
Townsend, Todd V.; and Streenan, Thomas, 4,424,421, Cl. 179-175.30R.
Strom, Robert M., to Dow Chemical Company, The. Carbamates of biphenyls. 4,424,395, Cl. 560-133.000.
Struck, Helmut: *See—*
Wallentowitz, Henning; Struck, Helmut; and Richter, Karl-Heinz, 4,423,883, Cl. 280-96.000.
Strzala, Helmut: *See—*
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Studebaker, Irving G., to Occidental Oil Shale, Inc. Method of forming an in situ oil shale retort. 4,423,906, Cl. 299-2.000.
Stuff, Alfred O., Jr. Golf club head. 4,423,874, Cl. 273-171.000.
Stunkel, Helmut: *See—*
Bege, Dietmar; Faust, Hans-Joachim; Puthawala, Anwer; and Stunkel, Helmut, 4,424,149, Cl. 252-629.000.
Sturm, Bernhard: *See—*
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Sucato, Justin F., to Bethlehem Steel Corporation. Billet turner. 4,424,000, Cl. 414-780.000.
Suchma, Charles J.: *See—*
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Suedeutsche Zucker-Aktiengesellschaft: *See—*
Schiweck, Hubert; and Witte, Gunter, 4,424,078, Cl. 127-50.000.
Suey, Paul V. Insulating tile for application to water cooled pipes and method for applying same to pipes. 4,424,027, Cl. 432-233.000.
Sugi, Nagatoshi: *See—*
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Sugier, Andre: *See—*
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Sugimoto, Yoji; and Tomioka, Hirotaka, to Nissan Motor Company, Limited. Tire-storage arrangement of automotive vehicle. 4,423,900, Cl. 296-37.140.
Sugishita, Nobuyuki; and Ikegami, Akira, to Hitachi, Ltd. Thick-film multi-layer wiring board. 4,424,251, Cl. 428-209.000.
Sukekawa Electric Co., Ltd.: *See—*
Ara, Katsuyuki; Wakayama, Naoaki; Kobayashi, Kazuo; and Ogasawara, Toshihiko, 4,423,629, Cl. 73-295.000.
Sullivan, Donald F. Photoprinting process and apparatus for exposing paste-consistency photopolymers. 4,424,089, Cl. 156-155.000.
Sullivan, James F.: *See—*
Sours, William A.; and Sullivan, James F., 4,423,844, Cl. 241-35.000.
Sulowski, Andrew C.; and Skelton, Henry E. Ladder climber's safety device. 4,423,796, Cl. 182-8.000.
Sumitomo Chemical Company, Limited: *See—*
Hamada, Kazuhiko; Yoshihara, Hiroshi; and Suzukamo, Gohfu, 4,424,390, Cl. 549-483.000.
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Summers, James W.: *See—*
Ravinovitch, Elvira B.; and Summers, James W., 4,424,292, Cl. 524-88.000.
Sun Electric Corporation: *See—*
Wood, John F., 4,423,761, Cl. 157-1.280.
Sun Tech, Inc.: *See—*
Hsu, Chao-Yang, 4,424,380, Cl. 568-454.000.
Sunaga, Yoshimistu, to Pioneer Electronic Corporation. Magnetic recording device. 4,424,537, Cl. 360-66.000.
Sundeen, Joseph E.; and Dejneka, Tamara, to E. R. Squibb & Sons, Inc. Inhibitors of mammalian collagenase. 4,424,354, Cl. 544-299.000.
Suresh, Dev D.: *See—*
Grasselli, Robert K.; Suresh, Dev D.; and Friedrich, Maria S., 4,424,141, Cl. 502-205.000.
Sussman, Marvin L.: *See—*
Tarjan, Peter P.; Sussman, Marvin L.; and Jacobsen, Steven, 4,423,732, Cl. 128-419.00P.
Suttles, James M., to Mead Corporation, The. Forward feed merchandising device for soft drink bottles. 4,423,816, Cl. 211-183.000.
Sutton, David A.: *See—*
Lewis, Martyn A.; Penniman, Steven K.; and Sutton, David A., 4,424,543, Cl. 360-135.000.
Suwa, Kyoichi: *See—*
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Suzukamo, Gohfu: *See—*
Hamada, Kazuhiko; Yoshihara, Hiroshi; and Suzukamo, Gohfu, 4,424,390, Cl. 549-483.000.
Suzuki, Fuminori, to Citizen Watch Company Limited. Electronic timepiece having illumination level. 4,423,963, Cl. 368-68.000.
Suzuki, Hitoshi; Togawa, Fumio; and Hakaridani, Mitsuhiro, to Sharp Kabushiki Kaisha. Column dot formation in an ink jet system printer of the charge amplitude controlling type. 4,424,518, Cl. 346-75.000.
Suzuki, Miyo: *See—*
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Suzuki, Ryoichi; and Uchiyama, Takashi, to Canon Kabushiki Kaisha. TTL Light measuring system. 4,423,937, Cl. 354-446.000.
Suzuki, Takao: *See—*
Mizuno, Shogo; Suzuki, Takao; Kawasaki, Sadanobu; and Takeda, Hideichiro, 4,424,091, Cl. 156-234.000.
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Swedo, Raymond J., to UOP Inc. Preparation of surfactants. 4,424,169, Cl. 260-505.00R.
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Hopkins, William J.; Sweeney, Paula C.; and Bailey, David C., 4,424,059, Cl. 8-94.180.
Sweetland, Roger D., to Cummins Engine Company, Inc. Liquid cooling unit for an internal combustion engine. 4,423,708, Cl. 123-196.0AB.
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Khanna, Pyare, 4,424,150, Cl. 260-112.00R.
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Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Gyulai, Zsuzsanna; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,224, Cl. 424-256.000.
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Szelke, Michael; Jones, David M.; and Hallett, Allan, to Ferring Pharmaceuticals Limited. Enzyme inhibitors. 4,424,207, Cl. 424-177.000.
Szirt, Eniko nee Kiszelly: *See—*
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Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Gyulai, Zsuzsanna; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,224, Cl. 424-256.000.
Szycher, Michael, to Thermo Electron Corporation. Keratoprosthetic polyurethane. 4,424,335, Cl. 528-77.000.
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Leuvelink, Gerrit W. E., 4,423,543, Cl. 29-433.000.
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Tacchini, Franco, to Officina Meccanica Sestese S.p.A. Device for feeding and tensioning the packaging strap in strap applying machines. 4,423,672, Cl. 100-4.000.
Tachita, Ryobun: *See—*
Yano, Tsutomu; Hayakawa, Yoshihiro; Tachita, Ryobun; Irioka, Kazuyoshi; Fukukita, Hiroshi; and Fukumoto, Akira, 4,423,737, Cl. 128-661.000.
Tadokoro, Tomoo; Hayama, Nobuhiro; and Akagi, Toshimichi, to Toyo Kogyo Co., Ltd. Multiple port intake means for rotary piston engines. 4,423,711, Cl. 123-242.000.
Taguchi, Yasuo; and Nakao, Satoshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Semiconductor integrated circuit providing temperature compensation. 4,424,461, Cl. 307-491.000.
Taiho Kogyo Co., Ltd.: *See—*
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Takagi, Yasuyuki: *See—*
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Takahashi, Eiji; Shimazu, Shinichi; Wada, Yukio; Iwami, Ichiro; Nishiwaki, Takashi; Nishiyama, Toshikazu; and Ichida, Yutaka, to Kabushiki Kaisha Kobe Seiko Sho. Controlled cooling apparatus for hot rolled wire rods. 4,423,856, Cl. 266-106.000.
Takahashi, Fumio, to Nippon Kogaku K.K. Eye fundus observing and photographing optical system. 4,423,932, Cl. 351-207.000.
Takeda Chemical Industries, Inc.: *See—*
Okada, Yoshiyuki; and Sato, Yasuo, 4,424,214, Cl. 424-200.000.
Takeda Chemical Industries, Ltd.: *See—*
Hashimoto, Naoto; and Shimadzu, Hiroshi, 4,424,219, Cl. 424-248.540.
Takeda, Hideichiro: *See—*
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Takei, Yoshiaki: *See*—
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Takenaka, Akira; and Fukuoka, Tatsuhiko, to Taiho Kogyo Co., Ltd. Mechanical seal. 4,423,879, Cl. 277-96.100.
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Takeuchi, Tomio: *See*—
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Takigawa, Tadahiro; and Sasaki, Isao, to Tokyo Shibaura Denki Kabushiki Kaisha. Electron beam apparatus. 4,424,448, Cl. 250-397.000.
Takiuchi, Hidefumi: *See*—
Nagaoka, Shoji; Takiuchi, Hidefumi; Mori, Yuichi; and Kikuchi, Tetsuya, 4,424,311, Cl. 525-303.000.
Talbert Manufacturing, Inc.: *See*—
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Thomas, E. Raymond; Cahill, Lysle D.; Marshall, William W.; Talley, Luke L.; Lawson, John A.; and Wilcox, Brian N., 4,424,589, Cl. 382-61.000.
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Tanaka, Hajime: *See*—
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Tanaka, Nobuyasu; Tominaga, Hiroshi; Fujita, Minoru; Tanaka, Hajime; Hattori, Takahisa; Yasuda, Akira; and Kato, Shigeya, to Fuji Electric Company, Ltd. Goods discharge mechanism and goods storage and discharge system of automatic vending machine. 4,423,828, Cl. 221-129.000.
Tang, David Y.: *See*—
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Tarasenko, Valentin; and Edelstein, Harold, to Allied Corporation. Purification of anhydrous hydrogen fluoride. 4,424,067, Cl. 55-16.000.
Tarjan, Peter P.; Sussman, Marvin L.; and Jacobsen, Steven, to Cordis Corporation. Sterile connector system for packaged pacer. 4,423,732, Cl. 128-419.00P.
Tashoh, Masao: *See*—
Yaotani, Kouichi; and Tashoh, Masao, 4,423,902, Cl. 296-214.000.
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Taylor, Lloyd D.: *See*—
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Taylor, Paul; and Gulla, Michael, to Shipley Company Inc. Naphthol novolak resin blend. 4,424,315, Cl. 525-501.000.
Taylor, William S. H., to W. S. H. Taylor Engineering Developments Ltd. Pick-up hitch mounting arrangement. 4,423,886, Cl. 280-496.000.
Taylor, Wilson E., to Harris Corporation. Log surface determination technique. 4,424,530, Cl. 358-96.000.
TDK Electronics Co., Ltd.: *See*—
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Tedder, John M., to Beecham Group Limited. Process for preparing polycyclic triazoles used to inhibit allergic responses. 4,424,361, Cl. 548-259.000.
Teichmann, Friedrich: *See*—
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Telmo, Frisco T., to United States of America, Navy. Enclosure for a warhead case. 4,423,683, Cl. 102-481.000.
Tenison, Earnest M. Fermenting and carbonating apparatus. 4,423,670, Cl. 99-275.000.
Tennessee Valley Authority: *See*—
Shirley, Arthur R., Jr.; and Carney, Frederick T., Jr., 4,424,176, Cl. 264-7.000.
Terminal Data Corporation: *See*—
Rothbart, Michael; Therien, Robert D.; Oliver, Thomas W.; Roller, Thomas W.; and Williams, Robert D., 4,424,535, Cl. 358-294.000.
Tesch A.G.: *See*—
Tesch, Bernhard, 4,423,591, Cl. 59-80.000.
Tesch, Bernhard, to Zwyro A.G.; and Tesch A.G. Bracelet, watchband or like link. 4,423,591, Cl. 59-80.000.
Tesch, Gunter H.; and Colijn, Johannes J. V., to Breveteam S.A. Areal flat stratified body for treating gases or liquids, method for the manufacture thereof and use of such stratified body. 4,424,248, Cl. 428-172.000.
Tetra Pak International AB: *See*—
Pupp, Herwig, 4,424,260, Cl. 428-461.000.
Texaco Inc.: *See*—
Haag, James W., 4,423,783, Cl. 166-382.000.
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Texas Instruments Incorporated: *See*—
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Lin, Kun-Shan, 4,424,415, Cl. 381-39.000.
Theeuwes, Felix: *See*—
Urquhart, John; and Theeuwes, Felix, 4,424,056, Cl. 604-56.000.
Theilen, Rolf, to Triumph-Adler A.G. fur Buro- und Informationstechnik. Ribbon elevating mechanism. 4,423,973, Cl. 400-208.000.
Therien, Robert D.: *See*—
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Thermo Electron Corporation: *See*—
Szycher, Michael, 4,424,335, Cl. 528-77.000.
Theurer, Josef; Bock, Gernot; and Ganguly, Mihir, to Franz Plasser Bannbaumaschinen-Industrie Gesellschaft m.b.H. Track levelling and tamping machine with hydraulic pressure control system. 4,423,684, Cl. 104-7.00R.
Thies, Peter, to Wagener Schwelm GmbH & Co. Belt press with hose-type hydraulic force transmitter. 4,423,674, Cl. 100-99.000.
Thomas, David C., to Standard Oil Company. Method of using a spacer system in brine completion of wellbores. 4,423,781, Cl. 166-312.000.
Thomas, E. Raymond; Cahill, Lysle D.; Marshall, William W.; Talley, Luke L.; Lawson, John A.; and Wilcox, Brian N., to Coulter Systems Corporation. Flat bed scanner system and method. 4,424,589, Cl. 382-61.000.
Thompson, Charles E., to Huyck Corporation. Papermakers' fabric. 4,423,755, Cl. 139-383.00A.
Thompson, David A., to Corning Glass Works. Volatile cerium complexes. 4,424,165, Cl. 260-429.200.
Thompson, Gregory J.: *See*—
Lomas, David A.; and Thompson, Gregory J., 4,424,192, Cl. 422-109.000.
Thomson-CSF: *See*—
Bert, Alain, 4,424,495, Cl. 330-286.000.
Throckmorton, Morford C.; and Suchma, Charles J., to Goodyear Tire & Rubber Company, The. Process for nonaqueous dispersion polymerization of butadiene. 4,424,324, Cl. 526-220.000.
Thuy, N'Guyen U., to Societe CEM Compagnie ElectroMecanique et Cie. Freely commutating chopper circuit. 4,424,558, Cl. 363-124.000.
Thyssen, Heinz; and Breuer, Gunter, to Kernforschungsanlage Julich GmbH. Apparatus for the monitoring of the passsage of conductive objects through a tube. 4,424,187, Cl. 376-245.000.
Tiebor, John E.: *See*—
Joffe, Boris B.; Tiebor, John E.; Spongr, Jerry J.; and Sawyer, Byron E., 4,424,445, Cl. 250-308.000.
Tiegelmann, Gabriel, to White Consolidated Industries, Inc. Shelving construction. 4,423,978, Cl. 403-254.000.
TII Industries, Inc.: *See*—
Schleimann-Jensen, C. Arne, 4,424,026, Cl. 432-125.000.
Smith, Thomas J., 4,424,546, Cl. 361-119.000.
Timar, Judit nee Gergely: *See*—
Benko, Pal; Kovanyi, Gyorgyi nee Lax; Timar, Judit nee Gergely; Sigmond, Maria nee Lakatos; Petocz, Lujza; Gorog, Peter; Kosoczky, Ibolya; Szirt, Eniko nee Kiszelly; and Tonchev, Hristone, 4,424,351, Cl. 542-439.000.
Times Fiber Communications, Inc.: *See*—
Dabby, Franklin W.; and Chesler, Ronald B., 4,423,925, Cl. 350-96.310.
Timex Corporation: *See*—
Hsu, Ying-Yen, 4,424,371, Cl. 549-373.000.
Hsu, Ying-Yen, 4,424,372, Cl. 549-374.000.
Tingleff, Paul; Prue, Homer; and Stewart, Charles, to Sanders Associates, Inc. Inflight aircraft training system. 4,424,038, Cl. 434-2.000.
Titan Marble & Stone Co.: *See*—
Farina, Joseph; and Pacelli, Antonio, 4,423,576, Cl. 52-235.000.
Titus, Charles H.; and Zlupko, John E., to General Electric Company. Surge suppressor construction. 4,424,547, Cl. 361-127.000.
Titus, Patricia E.: *See*—
Udvardy, Otto G.; Titus, Patricia E.; and Navratil, Martin, 4,424,300, Cl. 525-501.000.
Tod, Christopher J. N.: *See*—
Franek, Josef T.; Porucznik, Paul; Serby, Peter H.; and Tod, Christopher J. N., 4,423,823, Cl. 220-77.000.
Toelke, Lester W., to International Tool & Supply Co., Inc. Pipe alignment apparatus and method. 4,423,647, Cl. 81-57.340.
Toelke, Lester W., to International Tool and Supply Co., Inc. Pipe alignment tool. 4,423,648, Cl. 81-57.340.
Togawa, Fumio: *See*—
Suzuki, Hitoshi; Togawa, Fumio; and Hakaridani, Mitsuhiro, 4,424,518, Cl. 346-75.000.
Tokico Ltd.: *See*—
Miura, Ieaki, 4,423,801, Cl. 188-322.140.
Tokyo Electric Co., Ltd.: *See*—
Hira, Yutaka; and Nakamura, Shinya, 4,423,971, Cl. 400-144.200.
Tokyo Shibaura Denki Kabushiki Kaisha: *See*—
Fujioka, Yoshiharu; and Takei, Shushi, 4,423,550, Cl. 29-603.000.
Funaki, Kazuo, 4,423,608, Cl. 68-23.300.
Harata, Mituo; Katsura, Masaki; Uno, Shigeki; Hiraki, Hideaki; and Shiratori, Masayuki, 4,424,508, Cl. 338-35.000.
Hashimoto, Yasuich; and Oda, Yasuyuki, 4,424,536, Cl. 360-51.000.
Inomata, Koichiro; Hasegawa, Michio; and Onodera, Toshihiro, 4,424,459, Cl. 307-415.000.
Koike, Norio; and Ikari, Kunihiro, 4,424,265, Cl. 430-28.000.
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Murase, Hiroshi, 4,424,402, Cl. 174-16.0BH.
Shiraki, Ryuzo; Watanabe, Seizi; and Yuyama, Toshio, 4,424,456, Cl. 307-268.000.
Taguchi, Yasuo; and Nakao, Satoshi, 4,424,461, Cl. 307-491.000.
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Toledo Engineering Co., Inc.: *See*—
Steitz, William R.; and Carle, Richard C., 4,424,071, Cl. 65-337.000.

Tomaschek, Heinz: *See*—
Reich, Karl; Tomaschek, Heinz; and Busch, Georg, 4,424,327, Cl. 526-297.000.

Tominaga, Hiroshi: *See*—
Tanaka, Nobuyasu; Tominaga, Hiroshi; Fujita, Minoru; Tanaka, Hajime; Hattori, Takahisa; Yasuda, Akira; and Kato, Shigeya, 4,423,828, Cl. 221-129.000.

Tominaga, Shinji, to Minolta Camera Kabushiki Kaisha. Data superimposing and monitoring device for a camera. 4,423,938, Cl. 354-106.000.

Tomioka, Hirotaka: *See*—
Sugimoto, Yoji; and Tomioka, Hirotaka, 4,423,900, Cl. 296-37.140.

Tomcsev, Hristone: *See*—
Benko, Pal; Kovanyi, Gyorgyi nee Lax; Timar, Judit nee Gergely; Sigmond, Maria nee Lakatos; Petocz, Lujza; Gorog, Peter; Kosoczky, Ibolya; Szirt, Eniko nee Kiszelly; and Tomcsev, Hristone, 4,424,351, Cl. 542-439.000.

Toomey, Charles L.: *See*—
Pitman, Lawrence C.; and Toomey, Charles L., 4,424,044, Cl. 445-35.000.

Tor, Edward S. Water-tight insulated roof construction for house. 4,423,572, Cl. 52-94.000.

Toray Industries, Incorporated: *See*—
Nagaoka, Shoji; Takiuchi, Hidefumi; Mori, Yuichi; and Kikuchi, Tetsuya, 4,424,311, Cl. 525-303.000.
Ohigashi, Hiroji; Nakanishi, Toshiharu; and Suzuki, Miyo, 4,424,465, Cl. 310-335.000.

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Toshiba Ceramics Co., Ltd.: *See*—
Koyama, Masao; Matuo, Syuitu; Nakayama, Chiaki; and Hoshina, Katsumi, 4,424,193, Cl. 422-248.000.

Tossounian, Jacques L.: *See*—
Sheth, Prabhakar R.; and Tossounian, Jacques L., 4,424,235, Cl. 424-319.000.

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Townsend, Don G.: *See*—
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Townsend, Todd V.; and Streenan, Thomas, to Lynch Communication Systems, Inc. Apparatus for testing subscriber carrier systems. 4,424,421, Cl. 179-175.30R.

Toyo Kogyo Co., Ltd.: *See*—
Morita, Yasuyuki; Yokooku, Katsuhiko; Shiraishi, Hideo; and Matsuura, Masahiko, 4,423,705, Cl. 123-41.020.
Tadokoro, Tomoo; Hayama, Nobuhiro; and Akagi, Toshimichi, 4,423,711, Cl. 123-242.000.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See*—
Sami, Hiroshi; Ueda, Tatehito; Ito, Osamu; Hobo, Nobuhito; Naitou, Takashi; Nakamura, Tetsuya; Kawai, Shizuo; and Miyata, Yukinori, 4,423,713, Cl. 123-357.000.

Toyotomi Kogyo Co., Ltd.: *See*—
Nakamura, Kazuharu; Mito, Yoshio; Okayasu, Akiyoshi; and Takeuchi, Kazuhiko, 4,424,019, Cl. 431-307.000.

Tran, Tuan P.: *See*—
Keel, Beat G.; Tran, Tuan P.; Koller, Mara M.; Zimmerman, Larry D.; and Darst, Patrick C., 4,424,271, Cl. 430-315.000.

Transnuklear GmbH: *See*—
Botzem, Werner; Knappe, Ortwin; and Srostlik, Peter, 4,423,802, Cl. 188-377.000.

Trenkle, Robert W.: *See*—
Mookherjee, Braja D.; Trenkle, Robert W.; Wolff, Robin K.; Bodes, Richard M.; and Yoshida, Takao, 4,424,378, Cl. 568-374.000.

Treves, Barry W.; and Kemp, Ian, to Dunlop Limited. Tire tread with zig-zag grooves having groove sidewalls of varying degrees of support. 4,423,760, Cl. 152-209.00R.

Trimak Equipment Ltd.: *See*—
Garcia, Ricardo A. M., 4,423,588, Cl. 57-127.500.

Trinkl, Gerd; and Schopp, Helmut, to Foseco International Limited. Method for the production of a metal casting mould having a riser and a cavity former and riser sleeve for use therein. 4,423,762, Cl. 164-37.000.

Triple/S Dynamics, Inc.: *See*—
Sours, William A.; and Sullivan, James F., 4,423,844, Cl. 241-35.000.

Triumph-Adler A.G. fur Buro- und Informationstechnik: *See*—
Muller, Siegfried; and Teichmann, Friedrich, 4,423,974, Cl. 400-242.000.
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Triune Automated Painting Systems: *See*—
O'Brien, Lawrence B.; Winston, Walter F.; Abner, Edmund L.; Atkinson, Lowell G.; Roudebush, H. Richard; Buehler, William L.; Bergstresser, Jim K.; and Messick, Walker A., 4,424,011, Cl. 417-477.000.

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Kirst, Herbert A.; and Truedell, Brenda A., 4,424,344, Cl. 536-16.900.
Kirst, Herbert A.; and Truedell, Brenda A., 4,424,345, Cl. 536-16.900.

Trull, Olin C.: *See*—
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Trummlitz, Gunter: *See*—
Eberlein, Wolfgang; Trummlitz, Gunter; Schmidt, Gunther; Engel, Wolfhard; Hammer, Rudolf; and Del Soldato, Piero, 4,424,226, Cl. 424-263.000.
Schmidt, Gunther; Eberlein, Wolfgang; Engel, Wolfhard; Trummlitz, Gunter; Hammer, Rudolf; and Del Soldato, Piero, 4,424,225, Cl. 424-256.000.

Trummlitz, Gunther: *See*—
Engel, Wolfhard; Schmidt, Gunther; Trummlitz, Gunther; Eberlein, Wolfgang; Hammer, Rudolf; and Soldato, Piero D., 4,424,222, Cl. 424-250.000.

Trupin, Robert J.: *See*—
Karnes, Thomas E.; and Trupin, Robert J., 4,423,596, Cl. 60-527.000.

Trustroke International, Inc.: *See*—
Miller, Gardner H., 4,423,875, Cl. 273-186.00C.

Tsai, Peter: *See*—
White, Noam; Kagi, Douglas A.; Creer, Jack G.; and Tsai, Peter, 4,424,401, Cl. 585-416.000.

Tsubaki, Kazumi; Koto, Noriaki; and Abe, Toyohiko, to Nissan Chemical Industries, Ltd. Process for producing copolymer of ethylene. 4,424,321, Cl. 526-128.000.

Tsuji, Naoki; and Nagashima, Kazuo, to Shionogi & Co., Ltd. K-41.C(2) esters. 4,424,212, Cl. 424-181.000.

Tsukamoto, Kunio; and Shibano, Michio, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Balloon control ring. 4,423,590, Cl. 57-354.000.

Tsukiji, Yoshihiro: *See*—
Kodama, Kazuo; and Tsukiji, Yoshihiro, 4,423,990, Cl. 409-132.000.

Tsunoda, Takahiro; Yamaoka, Tsuguo; and Tamura, Sinji, to Daikin Kogyo Co., Ltd. Photosensitive material. 4,424,325, Cl. 526-245.000.

Tsuzuki, Hanzo, to Casio Computer Co., Ltd. Data processing apparatus with voice output. 4,424,566, Cl. 364-405.000.

Tuemmler, Gerhard: *See*—
Mamet, Manfred; Fischer, Dietrich; Tuemmler, Gerhard; and Niederhuefner, Detlev, 4,424,490, Cl. 324-424.000.

Turner, A. Franklin: *See*—
Roese, John A.; and Turner, A. Franklin, 4,424,529, Cl. 358-88.000.

Turner, William D. Electronic transfer organ. 4,423,655, Cl. 84-1.190.

Tuttle, Ronald R., to Key Pharmaceuticals, Inc. 3,4-Di-isobutyryloxy-N-[3-(4-isobutyryloxyphenyl)-1-methyl-n-propyl]-beta-phenethylamine cyclodextrin complexes. 4,424,209, Cl. 424-180.000.

Tward, Emanuel, to Tward 2001 Limited. Capacitive system for manometric detection and measurement of differential pressures. 4,423,638, Cl. 73-749.000.

Tward 2001 Limited: *See*—
Tward, Emanuel, 4,423,638, Cl. 73-749.000.

Twin City International, Inc.: *See*—
Joffe, Boris B.; Tiebor, John E.; Spongr, Jerry J.; and Sawyer, Byron E., 4,424,445, Cl. 250-308.000.

Tyndale Plains-Hunter, Ltd.: *See*—
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Tzschoppe, Eberhard: *See*—
Klippert, Heinz; Tzschoppe, Eberhard; Paschalis, Stratos; Weinlich, Jurgen; and Engelmann, Manfred, 4,424,301, Cl. 525-53.000.

Uchida, Masayoshi, to Victor Company of Japan, Limited. Pickup cartridge having a ribbed cantilever. 4,424,583, Cl. 369-126.000.

Uchiyama, Takashi: *See*—
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Udvardy, Otto G.; Titus, Patricia E.; and Navratil, Martin, to Borden, Inc. Powdered phenol-formaldehyde resin. 4,424,300, Cl. 525-501.000.

Ueda, Tatehito: *See*—
Sami, Hiroshi; Ueda, Tatehito; Ito, Osamu; Hobo, Nobuhito; Naitou, Takashi; Nakamura, Tetsuya; Kawai, Shizuo; and Miyata, Yukinori, 4,423,713, Cl. 123-357.000.

Ueno, Katumi; and Nishizaki, Genichi, to Citizen Watch Company Limited. Table apparatus. 4,423,686, Cl. 108-20.000.

Ueno, Kouji: *See*—
Fukushima, Toshitaka; Koyama, Kazumi; Ueno, Kouji; Miyamura, Tamio; and Kawabata, Yuichi, 4,424,582, Cl. 365-189.000.

Ujihara, Takashi; Inoue, Akiyoshi; Yamada, Youzou; Yasuda, Shinji; Takeda, Shuji; and Ioroi, Takao, to Pioneer Electronic Corporation. Magnetic head and method of producing same. 4,424,542, Cl. 360-121.000.

Ulstein Trading Ltd. A/S: *See*—
Royset, Norvald, 4,423,697, Cl. 114-199.000.

Umezawa, Hamao: *See*—
Oki, Toshikazu; Yoshimoto, Akihiro; Matsuzawa, Yasue; Ishikura, Tomoyuki; Umezawa, Hamao; and Takeuchi, Tomio, 4,424,342, Cl. 536-6.400.

Unarco Industries, Inc.: *See*—
Loomis, Russell M., 4,423,896, Cl. 292-284.000.

UNC Recovery Corporation: *See*—
Korchnak, Joseph D.; and Fett, Richard H. G., 4,424,195, Cl. 423-10.000.

Unex Corporation: *See*—
Junkers, John K.; and Krautter, Wilhelm, 4,423,649, Cl. 81-57.390.
Union Carbide Corporation: *See*—
Iya, Sridhar K., 4,424,199, Cl. 423-349.000.
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Sara, Ramond V., 4,424,145, Cl. 252-509.000.
Weinberg, Kurt; and Johnson, Gordon C., 4,424,140, Cl. 502-155.000.
Union Special GmbH: *See*—
Schwaab, Konstantin, 4,423,691, Cl. 112-272.000.
United Coatings, Inc.: *See*—
Knapp, Jules F., 4,423,811, Cl. 206-362.300.
United Gas Pipe Line Company: *See*—
Klass, Donald L.; and Ghosh, Sambhunath, 4,424,064, Cl. 48-197.00A.
United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the: *See*—
Poole, Joseph, 4,423,957, Cl. 356-153.000.
U.S. Capacitor Corporation: *See*—
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U.S. Clinical Products, Inc.: *See*—
Cummings, Robert, 4,423,819, Cl. 215-232.000.
United States Gypsum Company: *See*—
Palmer, Jay W.; and Gaynor, John C., 4,424,196, Cl. 423-166.000.
Powell, Byron E.; Bakhshi, Virendar S.; and Randolph, Donald A., 4,424,197, Cl. 423-244.000.
Rosenstiel, Terry L.; and Debus, Allen A. G., 4,424,148, Cl. 252-628.000.
United States of America
Agriculture: *See*—
Hopkins, William J.; Sweeney, Paula C.; and Bailey, David C., 4,424,059, Cl. 8-94.180.
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McGuire, Raymond R.; Cochoy, Robert E.; and Shackelford, Scott A., 4,424,398, Cl. 568-589.000.
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Bly, Vincent T., 4,423,927, Cl. 350-331.00R.
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Stern, Richard A.; and Babbitt, Richard W., 4,424,517, Cl. 343-771.000.
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National Aeronautics and Space Administration: *See*—
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U.S. Philips Corporation: *See*—
Almgren, Per H. I.; Fredriksson, Ove R.; and Nasretdin, Adil M., 4,424,430, Cl. 219-10.55F.
Lelong, Pierre H.; and Ott, Jean H., 4,424,447, Cl. 250-363.00S.
Zeppenfeld, Klaus W. M. P., 4,424,466, Cl. 313-433.000.
United Technologies Corporation: *See*—
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University of Birmingham: *See*—
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Uno, Shigeki: *See*—
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UNR Industries, Inc.: *See*—
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UOP Inc.: *See*—
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Upjohn Company, The: *See*—
Johnson, Roy A.; Lincoln, Frank H.; and Pike, John E., 4,424,350, Cl. 542-426.000.
Nelson, Stephen J., 4,424,368, Cl. 549-220.000.
Robert, Andre, 4,424,227, Cl. 424-270.000.
Wierenga, Wendell, 4,424,365, Cl. 548-421.000.
Uppaluri, Bapa R., to Southwire Company. Cantilevered roll shaft bearing bracket. 4,423,612, Cl. 72-35.000.
Upshaw, Clarence W.: *See*—
Stover, Don A.; Upshaw, Clarence W.; and Norman, Warren N., 4,423,882, Cl. 280-33.99B.
Urquhart, John; and Theeuwes, Felix, to Alza Corporation. Parenteral administration. 4,424,056, Cl. 604-56.000.
USM Corporation: *See*—
White, Anthony M., 4,423,530, Cl. 12-1.00A.
v. d. Kammer, Gunter: *See*—
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Vacher, Jean: *See*—
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Vairetti, Claude R. L.; Desnoyers, Michel R. L.; Carbonel, Jack; Grammont, Paul D. A.; Pachkov, Arkadyi B.; Grigoriev, Vladimir A.; and Firsov, Vladimir I. Continuous production of polymer beads of controlled size. 4,424,318, Cl. 526-88.000.
Valdespino, Joseph M.: *See*—
Parsons, Robert L.; Valdespino, Joseph M.; Varraux, Alan R.; Holcomb, Allen K.; and Hobby, William M., III, 4,424,058, Cl. 604-118.000.
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Cadars, Patrick, 4,423,769, Cl. 165-109.00T.
Valinsky, Jay E.; Reich, Edward; and Easton, Thomas G., to Rockefeller University. Employment of a mereyanine dye for the detection of malignant leukocytic cells. 4,424,201, Cl. 424-3.000.
Vallana, Franco; and Bona, Gioachino, to Sorin Biomedica S.p.A. Heart valve prosthesis. 4,423,525, Cl. 3-1.500.
Valsecchi, Alberto: *See*—
Franco, Simone; and Valsecchi, Alberto, 4,424,273, Cl. 430-529.000.
Vander Ley, Robert J., to Knape & Vogt Manufacturing Co. Drawer slide locking lever. 4,423,914, Cl. 312-333.000.
Van Dongen, Joannes A. M.: *See*—
Muller, Johannes F. J. M.; and Van Dongen, Joannes A. M., 4,423,965, Cl. 368-78.000.
Vangor, William, to KLM Company. Tamper proof closure and method of manufacturing same. 4,423,820, Cl. 215-252.000.
Van Ornum, Joel V.; and Stang, Peter L., to Rockcor, Inc. Elastomeric sealant composition. 4,424,295, Cl. 524-526.000.
van Os, Cornelis J., to Noord-Nederlandsche Machinefabriek B.V. Peristaltic pump. 4,424,009, Cl. 417-394.000.
Varco International, Inc.: *See*—
Abbott, Roderick K.; Seneviratne, Padmasiri D.; and Picard, Joseph A. R., 4,423,645, Cl. 74-810.000.
Varian Associates, Inc.: *See*—
Ward, Billy W.; and Wells, William D., 4,424,450, Cl. 250-492.200.
Varndell, John A., to Shell Internationale Research Maatschappij B.V. Closure device. 4,423,824, Cl. 220-281.000.
Varraux, Alan R.: *See*—
Parsons, Robert L.; Valdespino, Joseph M.; Varraux, Alan R.; Holcomb, Allen K.; and Hobby, William M., III, 4,424,058, Cl. 604-118.000.
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von Alpen, Ulrich; and Krauth, Axel, 4,424,262, Cl. 429-8.000.
Vartoukian, Artin G.: *See*—
Laude, Michael; Marra, Michael; Stone, Corbett W.; and Vartoukian, Artin G., 4,424,094, Cl. 156-513.000.
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Gruger, Christian, 4,424,052, Cl. 493-444.000.
Venable, Bennett M., to Certified Energy Corp. Synergistic air conditioning and refrigeration energy enhancement method. 4,423,602, Cl. 62-238.600.
Venit, Sharyn D. Acrobatic apparatus. 4,423,861, Cl. 272-61.000.
Venturelli, Rino, to Tecnomec di Venturelli Rino & C.S.n.c. Apparatus for unhooking and transferring hung articles, in particular cuts of meat. 4,423,808, Cl. 198-477.000.
ver der Lely, Cornelis. Soil cultivating machines. 4,423,786, Cl. 172-49.500.
Victor Company of Japan, Limited: *See*—
Hatao, Itsuro; and Kobayashi, Susumu, 4,424,513, Cl. 340-805.000.
Koinuma, Kazuo; and Yamazaki, Masami, 4,424,541, Cl. 360-75.000.
Uchida, Masayoshi, 4,424,583, Cl. 369-126.000.
Vidicraft, Inc.: *See*—
Karlock, James A.; and Marin, Roger A., 4,424,528, Cl. 358-39.000.
Vigneri, Ronald J.; and Nickos, Christopher J. Method and apparatus for fracturing hydrocarbon-bearing well formations. 4,423,780, Cl. 166-308.000.
Villa, Jose L.; Sinka, Joseph V.; Marcellis, Alphonso W.; and Fleming, Joseph P., to Diamond Shamrock Corporation. Additives for cementitious compositions. 4,424,074, Cl. 106-90.000.
Vining, Leo C.: *See*—
Kurobane, Itsuo; Vining, Leo C.; and McInnes, Alister G., 4,424,373, Cl. 549-393.000.
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Vinosen Company, Inc., The: *See*—
Benecke, Herman P., 4,424,202, Cl. 424-10.000.
Viola, Raymond D.; and Hanley, Gerard L., to Sperry Corporation. Beam forming network for a multibeam antenna. 4,424,500, Cl. 333-128.000.
Virginia Chemicals Inc.: *See*—
Clarke, John P., 4,423,618, Cl. 72-370.000.
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Bogese, Stephen B., II, 4,424,403, Cl. 174-36.000.
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von Alpen, Ulrich; and Krauth, Axel, to Varta Batterie Aktiengesellschaft. Electrochemical storage cell. 4,424,262, Cl. 429-8.000.
von Neufville-Schoepflin, Friedwalt: *See*—
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Voskresenskaya, Irina B.: *See*—
Pakhomov, Gennady N.; Luste, Anita Y.; Kolesnik, Anatoly G.; Demishev, Vasily N.; Pashinina, Eva L.; Mordvinova, Maria V.; Morozova, Lilia V.; Boginskaya, Lidia M.; Voskresenskaya, Irina B.; Onadchuk, Sara Z.; and Kadnikova, Galina I., 4,424,203, Cl. 424-52.000.
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Markofsky, Sheldon B., 4,424,385, Cl. 568-948.000.
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Wada, Tsuneo: *See*—
Kurihara, Seiji; Goto, Satoshi; Wada, Tsuneo; Kinoshita, Akira; Takei, Yoshiaki; Akashi, Naoko; and Nomori, Hiroyuki, 4,424,266, Cl. 430-59.000.
Wada, Yukio: *See*—
Takahashi, Eiji; Shimazu, Shinichi; Wada, Yukio; Iwami, Ichiro; Nishiwaki, Takashi; Nishiyama, Toshikazu; and Ichida, Yutaka, 4,423,856, Cl. 266-106.000.
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Wahl, Josef: *See*—
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Wallace, Donald G.; and Wade, Susan B., to Collagen Corporation. Collagen implant material and method for augmenting soft tissue. 4,424,208, Cl. 424-177.000.
Wallentowitz, Henning; Struck, Helmut; and Richter, Karl-Heinz, to Daimler-Benz Aktiengesellschaft. Steering arrangement for motor vehicles. 4,423,883, Cl. 280-96.000.
Walraevens, Rene; and Lerot, Luc, to Solvay & Cie. Process for the manufacture of olefine oxides. 4,424,391, Cl. 549-525.000.
Walter, Henry J.; and Schwarz, Frank, to Clairol Incorporated. Hair dryer with remote sensing temperature control. 4,424,437, Cl. 219-364.000.
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Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; and Reith, Walter, 4,423,911, Cl. 308-6.00C.
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Wasley, Jan W. F., to Ciba-Geigy Corporation. Method of treating anxiety. 4,424,221, Cl. 424-250.000.
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Wells, Jimmie D.; and DeLand, Robert E., to United States of America, Air Force. Chemical laser nozzle blade support system. 4,424,585, Cl. 372-89.000.
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Westelaken, Christianus M. T. Gravity flow dryer for particulate material having channelized discharge. 4,423,557, Cl. 34-56.000.
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White, Noam; Kagi, Douglas A.; Creer, Jack G.; and Tsai, Peter, to Broken Hill Proprietary Company Limited, The; Commonwealth Scientific; and Industrial Research Organisation. Aromatization of acetylene. 4,424,401, Cl. 585-416.000.
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Winchell, Frank J.; Williams, Jerry K.; and Irwin, C. Clark, to General Motors Corporation. Wheeled vehicle with cambering front module. 4,423,795, Cl. 180-215.000.
Windstrup, Robert F. Vise clamp. 4,423,860, Cl. 269-180.000.
Winkler, Jorg; Matthiessen, Hans; and Warncke, Ernst, to Dragerwerk Aktiengesellschaft. Closed cycle respirator with emergency oxygen supply. 4,423,723, Cl. 128-202.220.
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Yotsumoto, Toshihiro; and Koyama, Kazuo, to Bridgestone Tire Company Limited. Adhesive for bonding polyester fibrous material to rubber compositions. 4,424,238, Cl. 427-381.000.
Youmans, Barry J., to Babcock & Wilcox Company, The. Automatic photocell loading. 4,424,440, Cl. 250-206.000.
Young, David M., to Fisons Limited. Inhalation device for powdered medicaments. 4,423,724, Cl. 128-203.150.
Younts, Richard B. Protective device for use on a baseball bat. 4,423,868, Cl. 273-72.00R.
Yu, Arthur J.: *See*—
DiSalvo, Anthony L.; and Yu, Arthur J., 4,424,316, Cl. 525-528.000.
Yu, Chia-Nien: *See*—
Pelosi, Stanford S., Jr.; Yu, Chia-Nien; White, Ronald E.; and Wright, George C., 4,424,367, Cl. 549-74.000.
Yusawa, Motoyasu: *See*—
Nakamura, Motofumi; Horimoto, Koji; and Yusawa, Motoyasu, 4,424,255, Cl. 428-283.000.
Yuyama, Toshio: *See*—
Shiraki, Ryuzo; Watanabe, Seizi; and Yuyama, Toshio, 4,424,456, Cl. 307-268.000.
Yuyama, Yukihiro: *See*—
Maruta, Keiichi; and Yuyama, Yukihiro, 4,424,245, Cl. 428-40.000.
Zagranski, Raymond D.; and Howlett, James J., to Chandler Evans Inc. Fuel control for controlling helicopter rotor/turbine acceleration. 4,423,593, Cl. 60-39.161.
Zajer nee Balazs, Maria: *See*—
Keve, Tibor; Zsadon, Bela; Fekete, Gyorgy; Lorincz, Csaba; Galambos, Janos; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,223, Cl. 424-256.000.
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Gyulai, Zsuzsanna; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,224, Cl. 424-256.000.
Zaremba, Hubart B., to Standard Oil Company (Indiana). Method and equipment for running riser pipes for mooring offshore floating platforms. 4,423,982, Cl. 405-195.000.
Zelina, Francis J.; and Zelina, William B. Inverter ballast circuit with shoot through prevention, auto transformer coupling and overload prevention. 4,424,468, Cl. 315-222.000.
Zelina, William B.: *See*—
Zelina, Francis J.; and Zelina, William B., 4,424,468, Cl. 315-222.000.
Zenith Radio Corporation: *See*—
Skerlos, Peter C.; and Strammello, Peter, Jr., 4,424,594, Cl. 455-180.000.
Zeppenfeld, Klaus W. M. P., to U.S. Philips Corporation. Cathode ray tube with multipole correction ring. 4,424,466, Cl. 313-433.000.
Zetec, Inc.: *See*—
Denton, Clyde J.; and Lamb, Lloyd T., 4,424,486, Cl. 324-225.000.
Ziegler, Gunther, to SGF Suddeutsche Gelenkscheibenfabrik, GmbH & Co. KG. Flexible coupling. 4,424,046, Cl. 464-74.000.
Zielke, Clyde W.; and Rosenhoover, William A., to Conoco Inc. Regeneration of ZnC12. 4,424,111, Cl. 208-10.000.
Zimmerman, Larry D.: *See*—
Keel, Beat G.; Traa, Tuan P.; Koller, Mara M.; Zimmerman, Larry D.; and Darst, Patrick C., 4,424,271, Cl. 430-315.000.
Zinke, Horst, to Ciba-Geigy Corporation. Process for producing O,O-diesters of thiophosphorus acid. 4,424,173, Cl. 260-985.000.
Zisa, William J., to Westinghouse Electric Corp. Fixed light load adjustment assembly for induction meters. 4,424,485, Cl. 324-137.000.
Zlupko, John E.: *See*—
Titus, Charles H.; and Zlupko, John E., 4,424,547, Cl. 361-127.000.
Zsadon, Bela: *See*—
Keve, Tibor; Zsadon, Bela; Fekete, Gyorgy; Lorincz, Csaba; Galambos, Janos; Zajer nee Balazs, Maria; Forgach, Lilla; Karpati, Egon; Kiraly, Arpad; Kiraly nee Soos, Gyongyver; Szporny, Laszlo; and Rosdy, Bela, 4,424,223, Cl. 424-256.000.
Zumbach Electronic AG: *See*—
Stefan, Zgorski, 4,424,480, Cl. 324-60.00C.
Zuraw, Bruce L.: *See*—
Bohn, Joseph W.; Cohen, Peter A.; and Zuraw, Bruce L., 4,424,279, Cl. 436-534.000.
Zweifel, Hans; Schilling, Walter; Storni, Angelo; and Bellus, Daniel, to Ciba-Geigy Corporation. Tricyclic imidyl derivatives. 4,424,366, Cl. 548-431.000.
Zwyro A.G.: *See*—
Tesch, Bernhard, 4,423,591, Cl. 59-80.000.
50 States Distributing Company: *See*—
Greene, Ronald K., 4,424,538, Cl. 360-68.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 3RD DAY OF JANUARY, 1984

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Chadwick-Helmuth Company, Inc.: *See*—
Helmuth, James G., Re. 31,486, Cl. 315-205.000.

Charnley, Ralph L.: *See*—
Melander, Theodore A.; and Charnley, Ralph L., Re. 31,484, Cl. 354-324.000.

Choat, Joseph S. Shear type tree cutting device. Re. 31,481, Cl. 144-34.00E.

Faris, Sadeg M., to International Business Machines Corporation. Waveform transition sensitive Josephson junction circuit having sense bus and logic applications. Re. 31,485, Cl. 307-476.000.

Helmuth, James G., to Chadwick-Helmuth Company, Inc. Rapid starting of gas discharge lamps. Re. 31,486, Cl. 315-205.000.

Hruby, John O., Jr. Loudspeaker enclosure with enhanced bass response. Re. 31,483, Cl. 181-151.000.

International Business Machines Corporation: *See*—
Faris, Sadeg M., Re. 31,485, Cl. 307-476.000.

Lewis, David L. Hot wire tongue and groove cutting apparatus. Re. 31,479, Cl. 83-869.000.

Major, Emery. Fluid control apparatus. Re. 31,480, Cl. 137-544.000.

Melander, Theodore A.; and Charnley, Ralph L., to Pako Corporation. Anti-oxidation fluid replenisher control system for processor of photosensitive material. Re. 31,484, Cl. 354-324.000.

Noble, Charles H. Method for centrifugal casting and articles so produced. Re. 31,482, Cl. 164-114.000.

Pako Corporation: *See*—
Melander, Theodore A.; and Charnley, Ralph L., Re. 31,484, Cl. 354-324.000.

LIST OF DESIGN PATENTEES

Abe, Noboru; and Seiffert, Florian, to Matsushita Electric Works, Ltd. Hair dryer. 272,101, 1-3-84, Cl. D28-12.000.

Advanced Technology Products, Inc.: *See*—
Wolf, James L.; and Sallis, Daniel V., 272,094, Cl. D24-62.000.

Ainslie, Diane B., to Eastman Kodak Company. Photographic camera or similar article. 272,072, 1-3-84, Cl. D16-1.000.

Aktiebolaget Bofors: *See*—
Larsson, Torsten, 272,069, Cl. D15-28.000.
Larsson, Torsten, 272,070, Cl. D15-28.000.

American District Telegraph Company: *See*—
Gibbs, Terence E.; and Wagner, Walter, 272,050, Cl. D10-106.000.

American Standard Inc.: *See*—
Bocchini, William R.; and Wilcockson, Brian, 272,083, Cl. D23-48.000.
Fabian, Wolfgang, 272,082, Cl. D23-26.000.
MacAleese, George K.; and Leech, Lon B., 272,084, Cl. D23-94.000.
Stairs, Henry M., Jr., 272,039, Cl. D8-315.000.

Anthos S.A.: *See*—
Bulgari, Giovanni, 272,049, Cl. D10-11.000.

Baconet, Daniel; Leguay, Jacques; and Morizur, Jean-Yves, to Poclain, Societe Anonyme francaise. Combined cab and body for an earth-moving and handling machine. 272,071, 1-3-84, Cl. D15-30.000.

Basaldua, Tim, Jr. Wall mountable drawing implement holder. 272,024, 1-3-84, Cl. D6-125.000.

Baty, Willis A. Spring base chair. 272,020, 1-3-84, Cl. D6-70.000.

Baus, Andre E. J., to Goodyear Tire & Rubber Company, The. Tire tread and buttress. 272,057, 1-3-84, Cl. D12-151.000.

Beirise, Jean M.: *See*—
Coons, John C.; and Beirise, Jean M., 272,064, Cl. D14-53.000.

Bell, Ted A.; and Lehner, Daniel F., to Pretty Products, Inc. Article storage unit for a vehicle sunvisor. 272,059, 1-3-84, Cl. D12-191.000.

Beugnot, Bernard, to SEB. Deep fryer. 272,034, 1-3-84, Cl. D7-360.000.

Bevan, Mark H.; and Kief, Garry C., to Hastings, Clayton, Tucker & Craig, Inc. Collapsible display booth. 272,026, 1-3-84, Cl. D6-186.000.

Black, Jeanette S. Infant carrier. 272,015, 1-3-84, Cl. D3-31.000.

Blair, Saundra G. Combined wallet and key holder. 272,016, 1-3-84, Cl. D3-56.000.

Blau, Fernand J., to Goodyear Tire & Rubber Company, The. Tire tread and buttress. 272,056, 1-3-84, Cl. D12-151.000.

Bocchini, William R.; and Wilcockson, Brian, to American Standard Inc. Cassette for a sewerless toilet. 272,083, 1-3-84, Cl. D23-48.000.

Bulgari, Giovanni, to Anthos S.A. Clock. 272,049, 1-3-84, Cl. D10-11.000.

Candiliotis, Gerassimos C., to Uniroyal Inc. Pneumatic tire tread and buttress. 272,053, 1-3-84, Cl. D12-146.000.

Cassai, Gino H.: *See*—
Cassai, Henry J.; and Cassai, Gino H., 272,100, Cl. D28-7.000.

Cassai, Henry J. Cosmetic applicator. 272,099, 1-3-84, Cl. D28-7.000.

Cassai, Henry J.; and Cassai, Gino H. Adjustable cosmetic applicator. 272,100, 1-3-84, Cl. D28-7.000.

Chalme, Gerard: *See*—
Dehay, Georges; and Chalme, Gerard, 272,011, Cl. D2-276.000.

Chap, John P.: *See*—
Mayer, Joseph B.; and Chap, John P., 272,023, Cl. D6-125.000.

Clive Investments Pty. Limited: *See*—
Cowdroy, Thorp C., 272,043, Cl. D8-382.000.

Cointment, Delma M. Soft contact lens removing device. 272,073, 1-3-84, Cl. D16-124.000.

Compagnie Generale des Etablissements Michelin: *See*—
Gorez, Jean-Philippe, 272,054, Cl. D12-147.000.
Gorez, Jean-Philippe, 272,055, Cl. D12-147.000.

Confon AG: *See*—
Halm, Hans, 272,077, Cl. D19-76.000.

Coons, John C.; and Beirise, Jean M., to Masco Corporation of Indiana. Combined telephone handset and base therefore. 272,064, 1-3-84, Cl. D14-53.000.

Corba, Robert E.: *See*—
Suhajda, John I.; Corba, Robert E.; Davenport, Richard L.; and Miller, Allen D., 272,081, Cl. D23-17.000.

Corning Glass Works: *See*—
Faber, Candace M., 272,031, Cl. D7-39.000.
Smith, Robert M., 272,087, Cl. D24-1.100.

Cowdroy, Thorp C., to Clive Investments Pty. Limited. Separable connector. 272,043, 1-3-84, Cl. D8-382.000.

Dart Industries Inc.: *See*—
Grusin, Gerald M., 272,029, Cl. D7-16.000.

Davenport, Richard L.: *See*—
Suhajda, John I.; Corba, Robert E.; Davenport, Richard L.; and Miller, Allen D., 272,081, Cl. D23-17.000.

Dehay, Georges; and Chalme, Gerard. Ski boot. 272,011, 1-3-84, Cl. D2-276.000.

de Keller, David G. Game board. 272,079, 1-3-84, Cl. D21-40.000.

Dempster Corporation: *See*—
Dempster, Susan E., 272,028, Cl. D6-274.000.

Dempster, Susan E., to Dempster Corporation. Textile fabric placemat. 272,028, 1-3-84, Cl. D6-274.000.

Dicke, William C., to Singer Company, The. Dovetail template fixture. 272,038, 1-3-84, Cl. D8-71.000.

Eastman Kodak Company: *See*—
Ainslie, Diane B., 272,072, Cl. D16-1.000.

Ekuan, Kenji, to Nippon Gakki Seizo Kabushiki Kaisha. Digital audio discs player. 272,063, 1-3-84, Cl. D14-14.000.

Elliott, Quenton T.; and Elliott, Quenton T., Jr. Belt. 272,013, 1-3-84, Cl. D2-385.000.

Elliott, Quenton T., Jr.: *See*—
Elliott, Quenton T.; and Elliott, Quenton T., Jr., 272,013, Cl. D2-385.000.

Faber, Candace M., to Corning Glass Works. Transfer surface or the like for culinary ware. 272,031, 1-3-84, Cl. D7-39.000.

Fabian, Wolfgang, to American Standard Inc. Combined escutcheon and diverter valve control for bathtub/shower units. 272,082, 1-3-84, Cl. D23-26.000.

Fasco Controls Corporation: *See*—
Muench, Rudolph E., 272,042, Cl. D8-356.000.

Fesler, Thomas E. Combined handle and position fixating device for use with a ground cloth. 272,044, 1-3-84, Cl. D8-390.000.

Fischer Industries, Inc.: *See*—
Saidat, Richard B., 272,074, Cl. D17-17.000.

Fish, Errol R. Hexagonal suntanning booth interior. 272,093, 1-3-84, Cl. D24-39.000.

France Bed Co., Ltd.: *See*—
Masuda, Teruo, 272,092, Cl. D24-36.000.

Gehlke, Stephen J. S., to Ion Systems, Inc. Combined air ionizer and cleaner. 272,086, 1-3-84, Cl. D23-149.000.

Gibbs, Terence E.; and Wagner, Walter, to American District Telegraph Company. Control unit housing for an electrical protection system. 272,050, 1-3-84, Cl. D10-106.000.
Glassman, Jacob A. Surgical instrument. 272,089, 1-3-84, Cl. D24-26.000.
Goodyear Tire & Rubber Company, The: *See—*
Baus, Andre E. J., 272,057, Cl. D12-151.000.
Blau, Fernand J., 272,056, Cl. D12-151.000.
Jackson, Donald E., 272,051, Cl. D12-142.000.
Jackson, Donald E., 272,052, Cl. D12-142.000.
Gorez, Jean-Philippe, to Compagnie Generale des Etablissements Michelin. Tire. 272,054, 1-3-84, Cl. D12-147.000.
Gorez, Jean-Philippe, to Compagnie Generale des Etablissements Michelin. Tire. 272,055, 1-3-84, Cl. D12-147.000.
Goutchat, Maurice. Receptacle for sheet material. 272,025, 1-3-84, Cl. D6-180.000.
Greene, Harold R. Counter top pneumatic conveyor terminal. 272,076, 1-3-84, Cl. D18-35.000.
Grusin, Gerald M., to Dart Industries Inc. Covered food storage container. 272,029, 1-3-84, Cl. D7-16.000.
GTE Automatic Electric Labs Inc.: *See—*
Janda, George M., 272,065, Cl. D14-61.000.
GTE Products Corporation: *See—*
Haraden, Thomas; and Hough, Harold L., 272,098, Cl. D26-3.000.
Hagberg, Bruce E. Combined partition and merchandise display stand. 272,027, 1-3-84, Cl. D6-190.000.
Halm, Hans, to Confon AG. Telephone index. 272,077, 1-3-84, Cl. D19-76.000.
Hara, Kunio, to Tokyo Shibaura Denki Kabushiki Kaisha. Picture image memory unit. 272,067, 1-3-84, Cl. D14-107.000.
Haraden, Thomas; and Hough, Harold L., to GTE Products Corporation. Fluorescent lamp or the like. 272,098, 1-3-84, Cl. D26-3.000.
Harris, Janet E., personal representative: *See—*
Harris, John M.; and Harris, Janet E., personal representative, 272,041, Cl. D8-330.000.
Harris, John M.; and by Harris, Janet E., personal representative. Lock unit. 272,041, 1-3-84, Cl. D8-330.000.
Hastings, Clayton, Tucker & Craig, Inc.: *See—*
Bevan, Mark H.; and Kief, Garry C., 272,026, Cl. D6-186.000.
Hosid, Jack B. Massage device. 272,090, 1-3-84, Cl. D24-36.000.
Hough, Harold L.: *See—*
Haraden, Thomas; and Hough, Harold L., 272,098, Cl. D26-3.000.
Ikeda, Masaomi: *See—*
Tsutsumi, Yotaro; and Ikeda, Masaomi, 272,047, Cl. D9-415.000.
Ion Systems, Inc.: *See—*
Gehlke, Stephen J. S., 272,086, Cl. D23-149.000.
Ito, Yoshio: *See—*
Moriai, Yasuharu; Ito, Yoshio; and Sakatani, Atsushi, 272,061, Cl. D13-24.000.
Jablonski, Bertha O., executor: *See—*
Jablonski, Carl T., deceased; and Jablonski, Bertha O., executor, 272,080, Cl. D22-27.000.
Jablonski, Carl T., deceased; and by Jablonski, Bertha O., executor. Fishing lure. 272,080, 1-3-84, Cl. D22-27.000.
Jackson, Donald E., to Goodyear Tire & Rubber Company, The. Tire tread and buttress. 272,051, 1-3-84, Cl. D12-142.000.
Jackson, Donald E., to Goodyear Tire & Rubber Company, The. Tire tread and buttress. 272,052, 1-3-84, Cl. D12-142.000.
Janda, George M., to GTE Automatic Electric Labs Inc. Wall telephone base housing. 272,065, 1-3-84, Cl. D14-61.000.
Kangas, Timothy J., to PACCAR Inc. Combined truck cab roof and deflector. 272,058, 1-3-84, Cl. D12-156.000.
Kaufman, Jack W. Disposable swab applicator package with standby reservoir. 272,091, 1-3-84, Cl. D24-34.000.
Keller, Rogenald J. Deep-sea fisherman's chair. 272,017, 1-3-84, Cl. D6-26.000.
Kief, Garry C.: *See—*
Bevan, Mark H.; and Kief, Garry C., 272,026, Cl. D6-186.000.
Larsen, Reid S., to Midwest International, Inc. Chair mounted television housing. 272,066, 1-3-84, Cl. D14-77.000.
Larsson, Torsten, to Aktiebolaget Bofors. Quick hitch for earth handling tools. 272,069, 1-3-84, Cl. D15-28.000.
Larsson, Torsten, to Aktiebolaget Bofors. Quick hitch for earth handling tools. 272,070, 1-3-84, Cl. D15-28.000.
Leech, Lon B.: *See—*
MacAleese, George K.; and Leech, Lon B., 272,084, Cl. D23-94.000.
Leguay, Jacques: *See—*
Baconet, Daniel; Leguay, Jacques; and Morizur, Jean-Yves, 272,071, Cl. D15-30.000.
Lehner, Daniel F.: *See—*
Bell, Ted A.; and Lehner, Daniel F., 272,059, Cl. D12-191.000.
MacAleese, George K.; and Leech, Lon B., to American Standard Inc. Fireplace insert or the like. 272,084, 1-3-84, Cl. D23-94.000.
Martell, Gregg. Combined paper guide and work table for typewriter. 272,075, 1-3-84, Cl. D18-12.000.
Masco Corporation of Indiana: *See—*
Coons, John C.; and Beirise, Jean M., 272,064, Cl. D14-53.000.
Masuda, Teruo, to France Bed Co., Ltd. Chiropractic body massager. 272,092, 1-3-84, Cl. D24-36.000.
Matsushita Electric Works, Ltd.: *See—*
Abe, Noboru; and Seiffert, Florian, 272,101, Cl. D28-12.000.
Mattheis, Harley H., to Risdon Corporation. Dispensing container for deodorants or the like. 272,046, 1-3-84, Cl. D9-377.000.
Mayer, Joseph B.; and Chap, John P., to Selfix, Inc. Support bracket. 272,023, 1-3-84, Cl. D6-125.000.
McMillin, Ansul E. Slip joint sink plumbing wrench. 272,035, 1-3-84, Cl. D8-22.000.
Mead Corporation, The: *See—*
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Midwest International, Inc.: *See—*
Larsen, Reid S., 272,066, Cl. D14-77.000.
Miller, Allen D.: *See—*
Suhajda, John I.; Corba, Robert E.; Davenport, Richard L.; and Miller, Allen D., 272,081, Cl. D23-17.000.
Mitcham, Michael P.: *See—*
Mitcham, William D.; and Mitcham, Michael P., 272,014, Cl. D2-420.000.
Mitcham, William D.; and Mitcham, Michael P. Tie tack. 272,014, 1-3-84, Cl. D2-420.000.
Morehouse, Laurence E. Chair. 272,019, 1-3-84, Cl. D6-47.000.
Moriai, Yasuharu; Ito, Yoshio; and Sakatani, Atsushi, to Tokai Electric Wire Co., Ltd. Connector housing. 272,061, 1-3-84, Cl. D13-24.000.
Morizur, Jean-Yves: *See—*
Baconet, Daniel; Leguay, Jacques; and Morizur, Jean-Yves, 272,071, Cl. D15-30.000.
Muench, Rudolph E., to Fasco Controls Corporation. Combined spacer and foldable lock for wires or the like. 272,042, 1-3-84, Cl. D8-356.000.
Nanba, Masumi, to Tokyo Shibaura Denki Kabushiki Kaisha. Compact fluorescent lamp. 272,096, 1-3-84, Cl. D26-3.000.
Nanba, Masumi, to Tokyo Shibaura Denki Kabushiki Kaisha. Compact fluorescent lamp. 272,097, 1-3-84, Cl. D26-3.000.
Nippon Gakki Seizo Kabushiki Kaisha: *See—*
Ekuan, Kenji, 272,063, Cl. D14-14.000.
Ogata, Haruki: *See—*
Shibata, Masamitsu; and Ogata, Haruki, 272,062, Cl. D14-11.000.
Olivan, Alfred. Slide for transferring invalid between wheel chair and auto seat. 272,102, 1-3-84, Cl. D34-32.000.
PACCAR Inc.: *See—*
Kangas, Timothy J., 272,058, Cl. D12-156.000.
Parr, Erwin W., to Ziphron, Inc. Pressurized dispensing container. 272,045, 1-3-84, Cl. D9-300.000.
Poclain, Societe Anonyme francaise: *See—*
Baconet, Daniel; Leguay, Jacques; and Morizur, Jean-Yves, 272,071, Cl. D15-30.000.
Pretty Products, Inc.: *See—*
Bell, Ted A.; and Lehner, Daniel F., 272,059, Cl. D12-191.000.
Price, Norris. Combined vibrator and hopper for a mortar applying machine. 272,068, 1-3-84, Cl. D15-13.000.
Puccini, John L. Tool for imprinting fish scale patterns in fresh concrete. 272,037, 1-3-84, Cl. D8-45.000.
RGG, Inc.: *See—*
Ruff, Stanley, 272,021, Cl. D6-96.000.
Rhea, Richard L. Swimming trunks. 272,010, 1-3-84, Cl. D2-42.000.
Rhoades, Betty L.: *See—*
Rhoades, Deo A.; and Rhoades, Betty L., 272,085, Cl. D23-131.000.
Rhoades, Deo A.; and Rhoades, Betty L. Dustless ash container or similar article. 272,085, 1-3-84, Cl. D23-131.000.
Richards, Diane L. Gift wrapping paper. 272,103, 1-3-84, Cl. D59-2.00C.
Richardson, Charles C. Open end wrench. 272,036, 1-3-84, Cl. D8-28.000.
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Ruff, Stanley, to RGG, Inc. Dispenser for plastic film material and the like. 272,021, 1-3-84, Cl. D6-96.000.
S. C. Johnson & Son, Inc.: *See—*
Suhajda, John I.; Corba, Robert E.; Davenport, Richard L.; and Miller, Allen D., 272,081, Cl. D23-17.000.
Saidat, Richard B., to Fischer Industries, Inc. Electric violin. 272,074, 1-3-84, Cl. D17-17.000.
Sakatani, Atsushi: *See—*
Moriai, Yasuharu; Ito, Yoshio; and Sakatani, Atsushi, 272,061, Cl. D13-24.000.
Sallis, Daniel V.: *See—*
Wolf, James L.; and Sallis, Daniel V., 272,094, Cl. D24-62.000.
Sato, Katsumi, to Tomy Kogyo Co., Inc. Hand holdable housing for game. 272,078, 1-3-84, Cl. D21-13.000.
Saucier, Marcel. Baby's fork. 272,033, 1-3-84, Cl. D7-141.000.
Scanlan, Arthur F. Hinge. 272,040, 1-3-84, Cl. D8-327.000.
SEB: *See—*
Beugnot, Bernard, 272,034, Cl. D7-360.000.
Seiffert, Florian: *See—*
Abe, Noboru; and Seiffert, Florian, 272,101, Cl. D28-12.000.
Selfix, Inc.: *See—*
Mayer, Joseph B.; and Chap, John P., 272,023, Cl. D6-125.000.
Shaffer, Melvin E. Nutcracker cup. 272,032, 1-3-84, Cl. D7-98.000.
Shibata, Masamitsu; and Ogata, Haruki, to Victor Company of Japan Limited. Video tape cassette. 272,062, 1-3-84, Cl. D14-11.000.
Simons, Sanford L. Portable laboratory mixer. 272,088, 1-3-84, Cl. D24-8.000.
Singer Company, The: *See—*
Dicke, William C., 272,038, Cl. D8-71.000.
Sleith, Robert W., to Suburban Plastics, Incorporated. Bowl. 272,030, 1-3-84, Cl. D7-28.000.
Smith, Robert M., to Corning Glass Works. Clinical chemistry analyzer. 272,087, 1-3-84, Cl. D24-1.100.
Stairs, Henry M., Jr., to American Standard Inc. Grab bar for bathtubs or the like. 272,039, 1-3-84, Cl. D8-315.000.
Stout, James T., to Mead Corporation, The. Article carrier blank. 272,048, 1-3-84, Cl. D9-433.000.

Suburban Plastics, Incorporated: *See*—
Sleith, Robert W., 272,030, Cl. D7-28.000.
Suhajda, John I.; Corba, Robert E.; Davenport, Richard L.; and Miller, Allen D., to S. C. Johnson & Son, Inc. Trigger sprayer. 272,081, 1-3-84, Cl. D23-17.000.
Teague, Joseph C. Combined bathroom towel support and storage device. 272,022, 1-3-84, Cl. D6-100.000.
Thompson, Robert V. Stool. 272,018, 1-3-84, Cl. D6-32.000.
Tokai Electric Wire Co., Ltd.: *See*—
Moriai, Yasuharu; Ito, Yoshio; and Sakatani, Atsushi, 272,061, Cl. D13-24.000.
Tokyo Shibaura Denki Kabushiki Kaisha: *See*—
Hara, Kunio, 272,067, Cl. D14-107.000.
Nanba, Masumi, 272,096, Cl. D26-3.000.
Nanba, Masumi, 272,097, Cl. D26-3.000.
Tomy Kogyo Co., Inc.: *See*—
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Toyo Seikan Kaisha, Ltd.: *See*—
Tsutsumi, Yotaro; and Ikeda, Masaomi, 272,047, Cl. D9-415.000.
Tremiti, Fred A., Jr. Boat. 272,060, 1-3-84, Cl. D12-315.000.
Trevisani, Jean P., to Uniroyal, Inc. Stripes portion of a shoe upper. 272,012, 1-3-84, Cl. D2-314.000.
Tsutsumi, Yotaro; and Ikeda, Masaomi, to Toyo Seikan Kaisha, Ltd. Bag for holding liquid. 272,047, 1-3-84, Cl. D9-415.000.
Uniroyal Inc.: *See*—
Candiliotis, Gerassimos C., 272,053, Cl. D12-146.000.
Trevisani, Jean P., 272,012, Cl. D2-314.000.
Varela, Jose. Wall panel. 272,095, 1-3-84, Cl. D25-80.000.
Victor Company of Japan Limited: *See*—
Shibata, Masaamitsu; and Ogata, Haruki, 272,062, Cl. D14-11.000.
Wagner, Walter: *See*—
Gibbs, Terence E.; and Wagner, Walter, 272,050, Cl. D10-106.000.
Wilcockson, Brian: *See*—
Bocchini, William R.; and Wilcockson, Brian, 272,083, Cl. D23-48.000.
Wolf, James L.; and Sallis, Daniel V., to Advanced Technology Products, Inc. Pressurized medicament dispenser and monitor. 272,094, 1-3-84, Cl. D24-62.000.
Ziphron, Inc.: *See*—
Parr, Erwin W., 272,045, Cl. D9-300.000.
Zonnenberg, Martin B. P. Molded poultry strip or similar article. 272,009, 1-3-84, Cl. D1-13.000.

LIST OF PLANT PATENTEES

Armstrong Nurseries, Inc.: *See*—
Swim, Herbert C.; and Christensen, Jack E., 5,168, Cl. 16.000.
Briggs, Carroll G., to Upjohn Company, The. Tomato plant. 5,171, 1-3-84, Cl. 89.000.
Christensen, Jack E.: *See*—
Swim, Herbert C.; and Christensen, Jack E., 5,168, Cl. 16.000.
Gesellschaftsvertrag uber die Erfindergemeinschaft "OPTIMARA": *See*—
Holtkamp, Reinhold, 5,170, Cl. 69.000.
Holtkamp, Reinhold, to Gesellschaftsvertrag uber die Erfindergemeinschaft "OPTIMARA". African violet plant. 5,170, 1-3-84, Cl. 69.000.
L. Daehnfeldt Ltd.: *See*—
Schelbeck, Erland V., 5,169, Cl. 68.000.
Schelbeck, Erland V., to L. Daehnfeldt Ltd. Begonia plant named Connie. 5,169, 1-3-84, Cl. 68.000.
Swim, Herbert C.; and Christensen, Jack E., to Armstrong Nurseries, Inc. Rose plant cv. Arocad. 5,168, 1-3-84, Cl. 16.000.
Upjohn Company, The: *See*—
Briggs, Carroll G., 5,171, Cl. 89.000.

LIST OF DEFENSIVE PUBLICATIONS

APPLICANTS TO WHOM

DEFENSIVE PUBLICATIONS WERE ISSUED ON THE 3RD DAY OF JANUARY, 1984

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O. G. 687.

Baum, William N.: *See*—
Lok, Roger; Freeman, John P.; and Baum, William N., T103,803, Cl. 548-121.000.
Freeman, John P.: *See*—
Lok, Roger; Freeman, John P.; and Baum, William N., T103,803, Cl. 548-121.000.
Grant, Duane E.; and Maddox, Randall A. Mirror multiplexor for linear image sensors. T103,801, 1-3-84, Cl. 250-578.000.
Lok, Roger; Freeman, John P.; and Baum, William N. Photographic speed increasing and latent image stabilizing compounds, silver halide emulsions, and photographic elements. T103,803, 1-3-84, Cl. 548-121.000.
Maddox, Randall A.: *See*—
Grant, Duane E.; and Maddox, Randall A., T103,801, Cl. 250-578.000.
Rinaldi, Joseph. Magnification lens for date dial in a wristwatch. T103,802, 1-3-84, Cl. 350-114.000.

CLASSIFICATION OF PATENTS

ISSUED JANUARY 3, 1984

NOTE.—First number, class; second number, subclass; third number, patent number

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CLASS 358

39 4,424,528
88 4,424,529
96 4,424,530
100 4,424,531
120 4,424,532
167 4,424,533
287 4,424,534
294 4,424,535

CLASS 360

51 4,424,536
66 4,424,537
68 4,424,538
69 4,424,539
71 4,424,540
75 4,424,541
121 4,424,542
135 4,424,543

CLASS 361

56 4,424,544
91 4,424,545
119 4,424,546
127 4,424,547
152 4,424,548
230 4,424,549
236 4,424,550
302 4,424,551
306 4,424,552
427 4,424,553

CLASS 362

365 4,424,554
419 4,424,555

CLASS 363

17 4,424,556
98 4,424,557
124 4,424,558
144 4,424,560

CLASS 364

131 4,424,559
200 4,424,561
4,424,562
4,424,563
4,424,564
4,424,565
405 4,424,566
4,424,567
431.07 4,424,568
474 4,424,569
520 4,424,570
806 4,424,571
900 4,424,572
4,424,573
4,424,574
4,424,575
4,424,576

CLASS 365

36 4,424,577
104 4,424,578
105 4,424,579
121 4,424,580
154 4,424,581
189 4,424,582

CLASS 366

75 4,423,960
183 4,423,961
279 4,423,962

CLASS 368

68 4,423,963
74 4,423,964
78 4,423,965
263 4,423,966

CLASS 369

126 4,424,583

CLASS 372

79 4,424,592
89 4,424,585

CLASS 373

97 4,424,584

CLASS 374

138 4,423,967
170 4,423,968

CLASS 376

211 4,424,186
245 4,424,187

CLASS 378

197 4,424,586

CLASS 381

24 4,424,416
39 4,424,415

CLASS 382

44 4,424,587
48 4,424,588
61 4,424,589
68 4,424,590

CLASS 400

124 4,423,969
141.1 4,423,970
144.2 4,423,971
155 4,423,972
208 4,423,973
242 4,423,974
616 4,423,975

CLASS 402

80 L 4,423,976

CLASS 403

232.1 4,423,977
254 4,423,978

CLASS 404

69 4,423,979
83 4,423,980

CLASS 405

133 4,423,981
195 4,423,982
4,423,983
4,423,984
224 4,423,985
259 4,423,986

CLASS 406

56 4,423,987
125 4,423,988

CLASS 408

197 4,423,989

CLASS 409

132 4,423,990
200 4,423,991

CLASS 411

223 4,423,992

CLASS 414

17 4,423,993
22 4,423,994
43 4,423,995
391 4,423,996
697 4,423,997
730 4,423,998
744 A 4,423,999
780 4,424,000

CLASS 416

92 4,424,001
111 4,424,002
241 B 4,424,003
244 A 4,424,004

CLASS 417

53 4,424,005
234 4,424,006
360 4,424,007
364 4,424,008
394 4,424,009
420 4,424,010
477 4,424,011
507 4,424,012

CLASS 418

48 4,424,013
104 4,424,014

CLASS 422

20 4,424,188
27 4,424,189
46 4,424,190
65 4,424,191
109 4,424,192
248 4,424,193

CLASS 423

1	4,424,194
10	4,424,195
166	4,424,196
244	4,424,197
342	4,424,198
349	4,424,199

CLASS 424

1.1	4,424,200
3	4,424,201
10	4,424,202
52	4,424,203
63	4,424,204
72	4,424,205
101	4,424,206
177	4,424,207
	4,424,208
180	4,424,209
	4,424,210
	4,424,211
181	4,424,212
184	4,424,213
200	4,424,214
210	4,424,215
211	4,424,216
216	4,424,217
238	4,424,218
248.54	4,424,219
250	4,424,220
	4,424,221
	4,424,222
256	4,424,223
	4,424,224
	4,424,225
263	4,424,226
270	4,424,227
	4,424,228
273 R	4,424,229
274	4,424,230
	4,424,231
279	4,424,232
288	4,424,233
308	4,424,374
317	4,424,234
319	4,424,235

CLASS 425

138	4,424,015
144	4,424,016

CLASS 426

231	4,424,236
653	4,424,237

CLASS 427

381	4,424,238
388.3	4,424,239
393.5	4,424,240
443.1	4,424,241

CLASS 428

35	4,424,242
36	4,424,243
40	4,424,244
	4,424,245
63	4,424,246
138	4,424,247
172	4,424,248
195	4,424,249
198	4,424,250
209	4,424,251
	4,424,252
215	4,424,253
	4,424,254
283	4,424,255
347	4,424,256
370	4,424,257
	4,424,258
451	4,424,259
461	4,424,260
530	4,424,261

CLASS 429

8	4,424,262
88	4,424,263
179	4,424,264

CLASS 430

28	4,424,265
59	4,424,266
66	4,424,267
83	4,424,268
94	4,424,269
166	4,424,270
315	4,424,271
507	4,424,272
529	4,424,273

CLASS 431

3	4,424,017
288	4,424,018
307	4,424,019
359	4,424,020

CLASS 432

5	4,424,022
14	4,424,021
19	4,424,023
90	4,424,024
120	4,424,025
125	4,424,026
233	4,424,027
234	4,424,028

CLASS 433

3	4,424,029
18	4,424,030
	4,424,031
19	4,424,032
20	4,424,033
40	4,424,034
73	4,424,035
116	4,424,036
173	4,424,037

CLASS 434

2	4,424,038
189	4,424,039
253	4,424,040

CLASS 435

144	4,424,274
160	4,424,275

CLASS 436

50	4,424,276
110	4,424,277
501	4,424,278
534	4,424,279

CLASS 440

5	4,424,041
44	4,424,042

CLASS 441

81	4,424,043

CLASS 445

35	4,424,044

CLASS 455

47	4,424,593
180	4,424,594
289	4,424,591

CLASS 464

52	4,424,045
74	4,424,046
145	4,424,047

CLASS 474

82	4,424,048
201	4,424,049
231	4,424,050

CLASS 493

37	4,424,051
444	4,424,052

CLASS 501

84	4,424,280
89	4,424,281

CLASS 502

68	4,424,144
84	4,424,142
117	4,424,139
155	4,424,140
162	4,424,138
205	4,424,141
225	4,424,143

CLASS 518

700	4,424,282

CLASS 521

32	4,424,283
36	4,424,284
56	4,424,285
58	4,424,286
74	4,424,287
99	4,424,288
103	4,424,289

CLASS 524

5	4,424,290
47	4,424,291
88	4,424,292
101	4,424,293
127	4,424,294
414	4,424,171
526	4,424,295
539	4,424,296
714	4,424,297
747	4,424,298

CLASS 525

31	4,424,299
53	4,424,301
58	4,424,302
67	4,424,303
68	4,424,304
127	4,424,305
131	4,424,306
154	4,424,307
196	4,424,308
211	4,424,309
274	4,424,312
303	4,424,311
438	4,424,313
454	4,424,314
501	4,424,300
	4,424,315
528	4,424,316
539	4,424,317

CLASS 526

88	4,424,318
	4,424,319
106	4,424,320
128	4,424,321
175	4,424,322
180	4,424,323
220	4,424,324
245	4,424,325
265	4,424,326
277	4,424,310
279	4,424,328
297	4,424,327
301	4,424,331
323.2	4,424,329
348	4,424,330

CLASS 528

30	4,424,332
75	4,424,333
77	4,424,334
	4,424,335
117	4,424,336
274	4,424,337
388	4,424,338
	4,424,339
500	4,424,340
501	4,424,341

CLASS 536

6.4	4,424,342
13.8	4,424,343
16.9	4,424,344
	4,424,345
17.9	4,424,348
20	4,424,346
91	4,424,347

CLASS 542

417	4,424,349
426	4,424,350
439	4,424,351

CLASS 544

4	4,424,352
253	4,424,353
299	4,424,354

CLASS 546

35	4,424,355
114	4,424,356
124	4,424,358
207	4,424,357
255	4,424,359

CLASS 548

257	4,424,360
259	4,424,361
306	4,424,362
362	4,424,363
373	4,424,364
421	4,424,365
431	4,424,366

CLASS 549

74	4,424,367
220	4,424,368
273	4,424,369
373	4,424,370
	4,424,371
374	4,424,372
393	4,424,373
407	4,424,389
483	4,424,390
525	4,424,391

CLASS 556

436	4,424,392

CLASS 560

21	4,424,393
105	4,424,375
	4,424,394
120	4,424,376
133	4,424,395

CLASS 562

456	4,424,396

CLASS 564

91	4,424,377

CLASS 568

374	4,424,378
446	4,424,379
454	4,424,380
473	4,424,397
589	4,424,398
753	4,424,381
783	4,424,382
840	4,424,399
899	4,424,388
902	4,424,383
	4,424,384
948	4,424,385

CLASS 570

109	4,424,386

CLASS 585

20	4,424,400
416	4,424,401
743	4,424,387

CLASS 604

4	4,424,053
11	4,424,054
36	4,424,055
56	4,424,056
88	4,424,057
118	4,424,058

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D2—	42	272,010
	276	272,011
	314	272,012
	385	272,013
	420	272,014
D3—	31	272,015
	56	272,016
D6—	26	272,017
	32	272,018
	47	272,019
	70	272,020
	96	272,021
	100	272,022
	125	272,023
		272,024
	180	272,025
	186	272,026
	190	272,027
	274	272,028
D7—	16	272,029
	28	272,030
	39	272,031
	98	272,032
	141	272,033
	360	272,034
D8—	22	272,035
	28	272,036
	45	272,037
	71	272,038
	315	272,039
	327	272,040
	330	272,041
	356	272,042
	382	272,043
	390	272,044
D9—	300	272,045
	377	272,046
	415	272,047
	433	272,048
D10—	11	272,049
	106	272,050
D12—	142	272,051
		272,052
	146	272,053
	147	272,054
		272,055
	151	272,056
		272,057
	156	272,058
	191	272,059
	315	272,060
D13—	24	272,061
D14—	11	272,062
	14	272,063
	53	272,064
	61	272,065
	77	272,066
	107	272,067
D15—	13	272,068
	28	272,069
		272,070
	30	272,071
D16—	1	272,072
	124	272,073
D17—	17	272,074
D18—	12	272,075
	35	272,076
D19—	76	272,077
D21—	13	272,078
	40	272,079
D22—	27	272,080
D23—	17	272,081
	26	272,082
	48	272,083
	94	272,084
	131	272,085
	149	272,086
D24—	1.1	272,087
	8	272,088
	26	272,089
	34	272,091
	36	272,090
		272,092
	39	272,093
	62	272,094
D25—	80	272,095
D26—	3	272,096
		272,097
		272,098
D28—	7	272,099
		272,100
	12	272,101
D34—	32	272,102
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PLANT PATENTS

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DEFENSIVE PUBLICATIONS APPLICATIONS

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